# STIC Search Report
## Biotech-Chem Library

**STIC Database Tracking Number: 163551**

**TO: Ben Sackey**
**Location: REM 5B31/5c18**
**Art Unit: 1626**
**August 23, 2005**

**Case Serial Number:** 10/681163

**From: P. Sheppard**
**Location: Remsen Building**
**Phone: (571) 272-2529**

**sheppard@uspto.gov**

## Search Notes

ACCESS DB # ______________

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Pinla S.

Scientific and Technical Information Center

# SEARCH REQUEST FORM

Requester's Full Name: BEN SACKEY Examiner # : 73489 Date: 8/11/05
Art Unit: 1626 Phone Number: 2-0704 Serial Number: 10/681,163
Location (Bldg/Room#): REM 5B31 (Mailbox #): ________ Results Format Preferred (circle): PAPER DISK

************************************************************************************

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: Method for preparing 3 types of benzidine compds in specific ratios

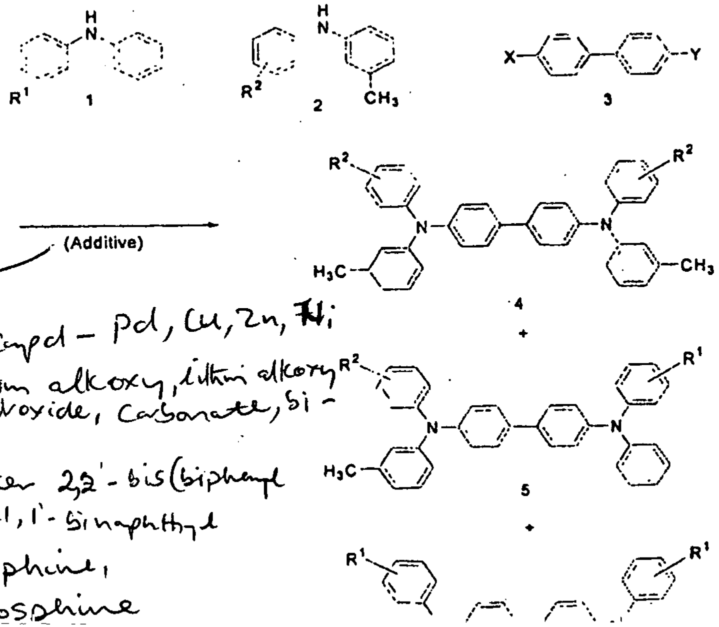
Inventors (please provide full names): Lai et al

Earliest Priority Date: 10/09/03

Search Topic:
*Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.*

*For Sequence Searches Only* *Please include all pertinent information (parent, child, divisi*

**1. A method for preparing three types of benzidine compounds in a specific ratio, the method taking two types of diphenylamine compounds (compound 1 and compound 2) and one type of biphenyldihalide compound (compound 3) as reactants with an additive to synthesize the three types of benzidine compounds (compound 4, compound 5, and compound 6) and performing in accordance with the following chemical reaction:**



Solvent
benzene Solv.
ether Solv
ethanol Solv

e.g.
Organic metallic compd - Pd, Cu, Zn, Ni
or alkali - sodium alkoxy, lithium alkoxy hydroxide, Carbonate, Si -
ligand
↳ ⓐ dentate ether 2,2'-bis(biphenyl phosphino)-1,1'-binaphthyl
ⓑ alkyl phosphine,
ⓒ alkoxy phosphine

Thanks

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=> d his ful

     (FILE 'HOME' ENTERED AT 14:17:50 ON 23 AUG 2005)

     FILE 'REGISTRY' ENTERED AT 14:17:57 ON 23 AUG 2005
L1                STR
L2             50 SEA SSS SAM L1
L3         108965 SEA SSS FUL L1
L4                STR
L5                STR
L6             46 SEA SUB=L3 SSS FUL L4
L7            709 SEA SUB=L3 SSS FUL L5
L8                STR
L9           2712 SEA SUB=L3 SSS FUL L8

     FILE 'HCAPLUS' ENTERED AT 14:32:02 ON 23 AUG 2005
L10           284 SEA ABB=ON  PLU=ON  L6
L11          9920 SEA ABB=ON  PLU=ON  L7
L12          4367 SEA ABB=ON  PLU=ON  L9
L13            29 SEA ABB=ON  PLU=ON  L10 AND L11 AND L12

     FILE 'REGISTRY' ENTERED AT 14:34:10 ON 23 AUG 2005
L14        271553 SEA ABB=ON  PLU=ON  METAL? OR PALLADIUM OR ZINC
L15        243338 SEA ABB=ON  PLU=ON  COPPER?/CN
L16        273644 SEA ABB=ON  PLU=ON  NICKEL?/CN
L17        166267 SEA ABB=ON  PLU=ON  ALKALI OR LITHIUM OR HYDROXIDE OR CARBONATE
                   OR BICARBONATE
L18        296251 SEA ABB=ON  PLU=ON  SODIUM
L19        176254 SEA ABB=ON  PLU=ON  PHENYL(L)PHOSPHINO?(L)(BINAPHTHYL? OR
                  NAPHTHYL) OR PHENYLPHOSPHINE OR PYRIDINE/CN
L20        129892 SEA ABB=ON  PLU=ON  PHOSPHINE NOT L19
L21          4432 SEA ABB=ON  PLU=ON  LIGAND?

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L22       4847030 SEA ABB=ON  PLU=ON  L14 OR L15 OR L16 OR METAL? OR PALLADIUM
                  OR ZINC OR COPPER OR NICKEL
L23        785006 SEA ABB=ON  PLU=ON  L19 OR L20 OR L21 OR PHENYL(2A)PHOSPHINO?(2
                  A)?NAPHTHYL? OR ?PHOSPHINE OR PYRIDINE OR LIGAND
L24             5 SEA ABB=ON  PLU=ON  L13 AND L22 AND L23
L25             5 SEA ABB=ON  PLU=ON  L24 AND PD=<OCTOBER 8, 2003
                  D STAT QUE
                  D IBIB ABS HITSTR L25 1-5
L26           154 SEA ABB=ON  PLU=ON  L9 AND L22 AND L23
L27           555 SEA ABB=ON  PLU=ON  L9(L)PREPARATION/RL
L28            45 SEA ABB=ON  PLU=ON  L26 AND L27
L29            41 SEA ABB=ON  PLU=ON  L28 NOT L25
L31            65 SEA ABB=ON  PLU=ON  (L29 OR L13) NOT L25
L32            52 SEA ABB=ON  PLU=ON  L31 AND PD=<OCTOBER 8, 2003
L33            23 SEA ABB=ON  PLU=ON  L32 AND (SOLVENT OR BENZEN? OR ETHER OR
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L34            28 SEA ABB=ON  PLU=ON  (L31 AND PD=<JULY 15, 2003) NOT (L25 OR
                  L33)
                  D STAT QUE L34
                  D IBIB ABS HITSTR L34 1-28

     FILE HOME

     FILE REGISTRY
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    22 AUG 2005  HIGHEST RN 861291-85-2
DICTIONARY FILE UPDATES:   22 AUG 2005  HIGHEST RN 861291-85-2

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

  Please note that search-term pricing does apply when
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*****************************************************************
*                                                                   *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                                   *
*****************************************************************

Structure search iteration limits have been increased.  See HELP SLIMITS
for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

FILE HCAPLUS

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FILE COVERS 1907 - 23 Aug 2005  VOL 143 ISS 9
FILE LAST UPDATED: 22 Aug 2005  (20050822/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

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=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 14:53:09 ON 23 AUG 2005
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FILE COVERS 1907 - 23 Aug 2005  VOL 143 ISS 9
FILE LAST UPDATED: 22 Aug 2005  (20050822/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

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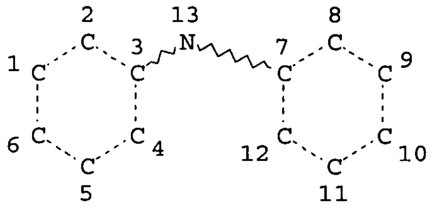

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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NUMBER OF NODES IS  13

STEREO ATTRIBUTES: NONE
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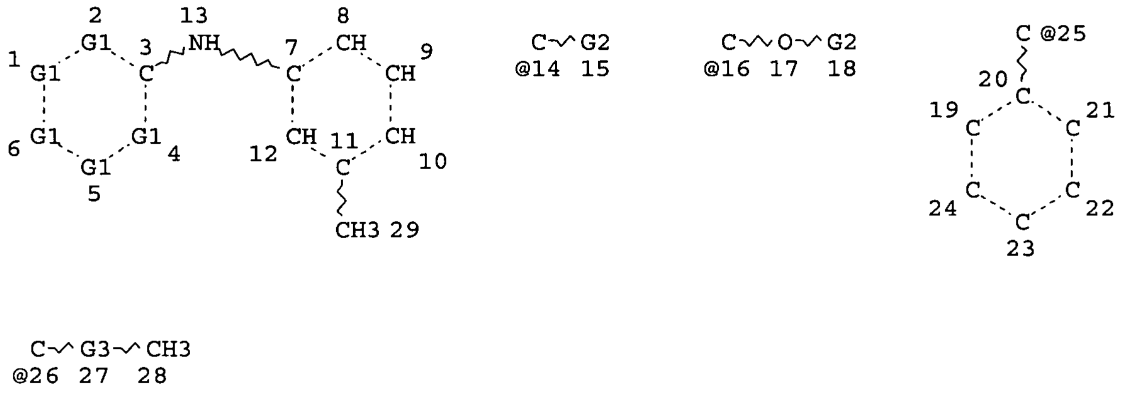

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GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  29

STEREO ATTRIBUTES: NONE
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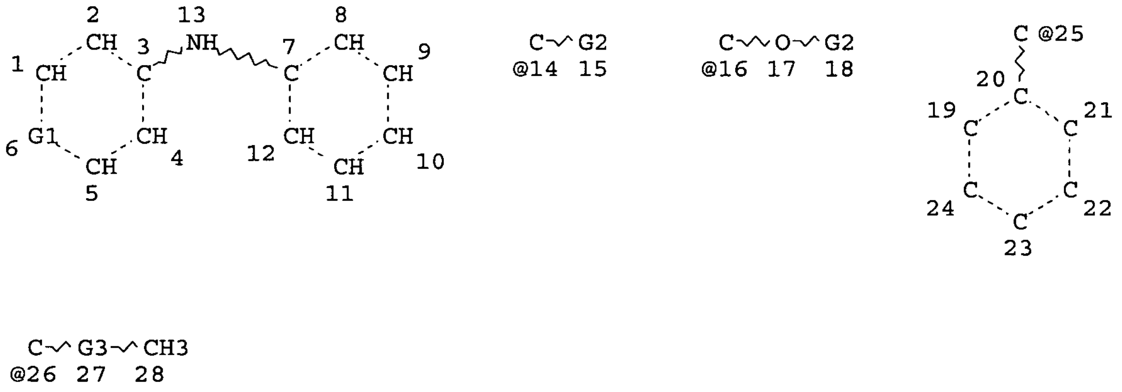

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REP G3=(3-3) C
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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  28

STEREO ATTRIBUTES: NONE
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L7         709 SEA FILE=REGISTRY SUB=L3 SSS FUL L5
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L8                STR
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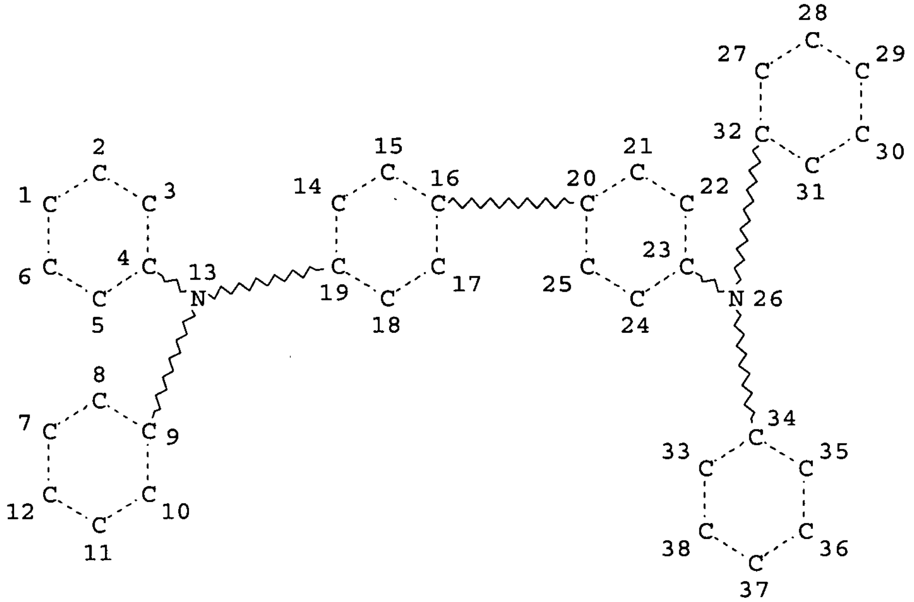

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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  38

STEREO ATTRIBUTES: NONE
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L11         9920 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L7
L12         4367 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9
L13           29 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L10 AND L11 AND L12
L14       271553 SEA FILE=REGISTRY ABB=ON  PLU=ON  METAL? OR PALLADIUM OR ZINC
L15       243338 SEA FILE=REGISTRY ABB=ON  PLU=ON  COPPER?/CN
L16       273644 SEA FILE=REGISTRY ABB=ON  PLU=ON  NICKEL?/CN
L19       176254 SEA FILE=REGISTRY ABB=ON  PLU=ON  PHENYL(L)PHOSPHINO?(L)(BINAPH
                 THYL? OR NAPHTHYL) OR PHENYLPHOSPHINE OR PYRIDINE/CN
L20       129892 SEA FILE=REGISTRY ABB=ON  PLU=ON  PHOSPHINE NOT L19
L21         4432 SEA FILE=REGISTRY ABB=ON  PLU=ON  LIGAND?
L22      4847030 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 OR L15 OR L16 OR METAL?
                 OR PALLADIUM OR ZINC OR COPPER OR NICKEL
L23       785006 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR L20 OR L21 OR PHENYL(2A
                 )PHOSPHINO?(2A)?NAPHTHYL? OR ?PHOSPHINE OR PYRIDINE OR LIGAND
L24            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND L22 AND L23
L25            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 AND PD=<OCTOBER 8, 2003


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=> d ibib abs hitstr l25 1-5

L25  ANSWER 1 OF 5  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:        2001:579234  HCAPLUS
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DOCUMENT NUMBER: 135:152619
TITLE: Preparation of arylamines from arylamines and aryl halides in the presence of **palladium** compounds and silylphosphines.
INVENTOR(S): Richter, Andreas M.; Lischewski, Volker
PATENT ASSIGNEE(S): Syntec Gesellschaft fuer Chemie und Technologie der Informationsaufzeichnung m.b.H., Germany
SOURCE: Ger. Offen., 8 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

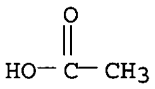
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| DE 19963009 | A1 | 20010809 | DE 1999-19963009 | 19991222 <-- |

PRIORITY APPLN. INFO.: DE 1999-19963009 19991222
OTHER SOURCE(S): CASREACT 135:152619; MARPAT 135:152619

AB Arylamines were prepared by reaction of specified aryl halides with specified arylamines in the presence of Pd compds. and (R1R2R3Si)(R4R5R6Si)(R7R8R9Si)P [R1-R9 = alkyl, cycloalkyl, (substituted) aryl, aralkyl; R1-R9 can form rings]. Thus, Pd(OAc)2, (Me3Si)3P, PhBr, Ph2NH, and NaOCMe3 were heated at 120° for 3 h in o-xylene to give 91% Ph3N.

IT **3375-31-3**, **Palladium** diacetate **15573-38-3**, Tris(trimethylsilyl)**phosphine**
RL: CAT (Catalyst use); USES (Uses)
(preparation of arylamines from arylamines and aryl halides in the presence of **palladium** compds. and silylphosphines)

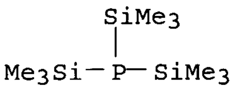
RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



$HO-\overset{\overset{\displaystyle O}{\|}}{C}-CH_3$

●1/2 Pd(II)

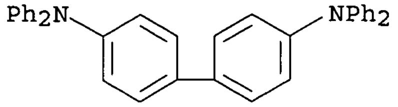
RN 15573-38-3 HCAPLUS
CN Phosphine, tris(trimethylsilyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



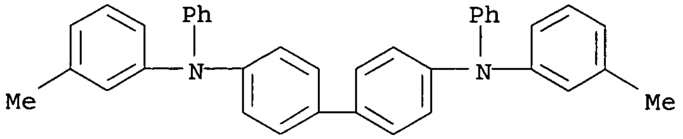
$Me_3Si-\overset{\overset{\displaystyle SiMe_3}{|}}{P}-SiMe_3$

IT **15546-43-7P** **65181-78-4P** **167218-46-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of arylamines from arylamines and aryl halides in the presence of **palladium** compds. and silylphosphines)

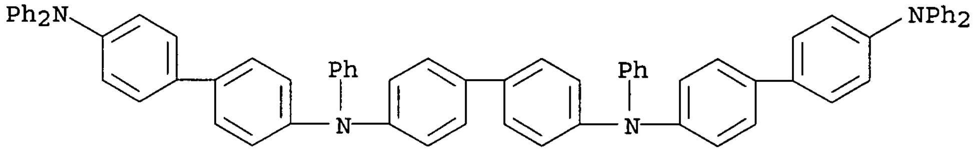
RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



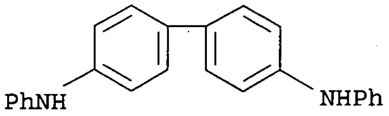
RN 167218-46-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



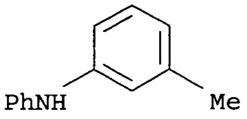
IT **122-39-4**, Diphenylamine, reactions **531-91-9**
**1205-64-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of arylamines from arylamines and aryl halides in the presence of **palladium** compds. and silylphosphines)
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph— NH— Ph

RN 531-91-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



L25 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:541516 HCAPLUS
DOCUMENT NUMBER: 135:122300
TITLE: Procedure for the production of arylamines from aryl halides and arylamines in the presence of **palladium** compounds and tertiary silylphosphines.
INVENTOR(S): Richter, Andreas M.
PATENT ASSIGNEE(S): SynTec Gesellschaft fuer Chemie und Technologie der Informationsaufzeichnung m.b.H., Germany
SOURCE: Ger. Offen., 8 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

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     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
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     DE 10002561          A1    20010726    DE 2000-10002561       20000119 <--
PRIORITY APPLN. INFO.:                      DE 2000-10002561       20000119
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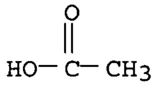
OTHER SOURCE(S): CASREACT 135:122300; MARPAT 135:122300

AB Arylamines were prepared by reaction of specified aryl halides with specified arylamines in the presence of Pd compds. and R1R2R3CP(XR4R5R6)SiR7R8R9 [X = C, Si; R1-R9 = alkyl, cycloalkyl, (substituted) aryl, aralkyl; or R1-R9 = components of rings formed from R1-R3, R4-R6, or R7-R9, resp.]. Thus, Pd(OAc)2, (Me3C)2PSiMe3, PhBr, and Ph2NH were heated 3 h at 120° in o-xylene to give 93% Ph3N.

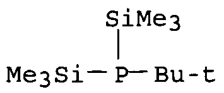
IT **3375-31-3**, **Palladium** diacetate **42491-33-8**, tert-Butylbis(trimethylsilyl)**phosphine** **42491-34-9**, Bis(tert-butyl)**trimethylsilylphosphine**
RL: CAT (Catalyst use); USES (Uses)
(procedure for the production of arylamines from aryl halides and arylamines in the presence of **palladium** compds. and tertiary silylphosphines)

RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)


$HO-C(=O)-CH_3$

● 1/2 Pd(II)

RN 42491-33-8 HCAPLUS
CN Phosphine, (1,1-dimethylethyl)bis(trimethylsilyl)- (9CI) (CA INDEX NAME)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RN 42491-34-9 HCAPLUS
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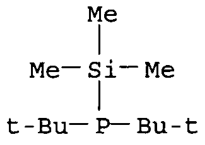
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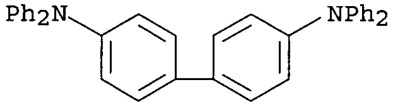
IT **15546-43-7P 65181-78-4P 167218-46-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(procedure for the production of arylamines from aryl halides and arylamines in the presence of **palladium** compds. and tertiary silylphosphines)
RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 65181-78-4 HCAPLUS
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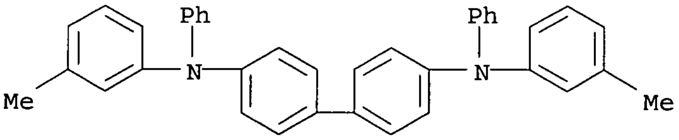

RN 167218-46-4 HCAPLUS
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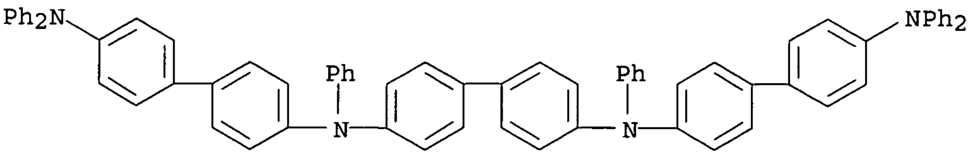
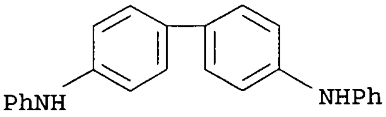


IT **122-39-4**, Diphenylamine, reactions **531-91-9**, N,N'-Diphenylbenzidine **1205-64-7**
RL: RCT (Reactant); RACT (Reactant or reagent)

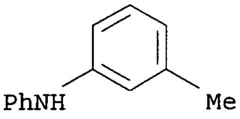
(procedure for the production of arylamines from aryl halides and arylamines in the presence of **palladium** compds. and tertiary silylphosphines)
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph—NH—Ph

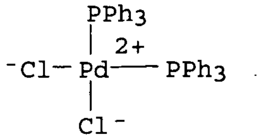
RN 531-91-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



L25 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:474197 HCAPLUS
DOCUMENT NUMBER: 133:150219
TITLE: Starburst molecules based on hexathienylbenzene units: potential hole-transport materials
AUTHOR(S): Wu, Iuan-Yuan; Lin, Jiann T.; Tao, Yu-Tai; Balasubramaniam, E.
CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei, 115, Taiwan
SOURCE: Advanced Materials (Weinheim, Germany) (**2000**), 12(9), 668-669
CODEN: ADVMEW; ISSN: 0935-9648
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The preparation of hexakis[(diarylamino)thienyl]benzenes, by Pd catalyzed six-fold thienylation (arylation) of hexabromobenzene, as hole transport materials in LED's is described. Their use in the devices is discussed.
IT **13965-03-2**, Bis(**triphenylphosphine**)**palladium** dichloride
RL: CAT (Catalyst use); USES (Uses)
(catalyst for hexakis[(diarylamino)thienyl]benzene precursor; starburst mols. based on hexathienylbenzene units as potential hole-transport materials)
RN 13965-03-2 HCAPLUS
CN Palladium, dichlorobis(triphenylphosphine)- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



$$^{-}Cl-\overset{\overset{PPh_3}{|}}{\underset{\underset{Cl^{-}}{|}}{Pd^{2+}}}-PPh_3$$

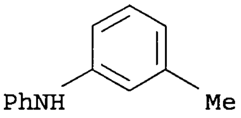
IT **7681-65-4**, Cuprous iodide
RL: CAT (Catalyst use); USES (Uses)
(catalyst in preparation of aminothiophene derivative and conversion to hexakis[(diarylamino)thienyl]benzenes; starburst mols. based on hexathienylbenzene units as potential hole-transport materials)
RN 7681-65-4 HCAPLUS
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu— I

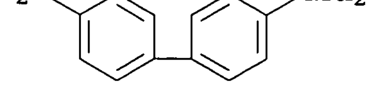
IT **122-39-4**, Diphenylamine, reactions **1205-64-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of aminothiophene derivative and conversion to hexakis[(diarylamino)thienyl]benzenes; starburst mols. based on hexathienylbenzene units as potential hole-transport materials)
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph— NH— Ph

RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)

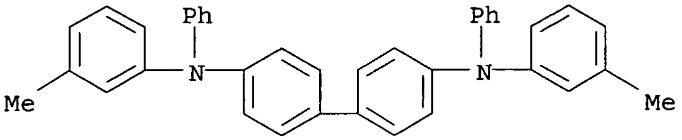


IT **15546-43-7 65181-78-4**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(starburst mols. based on hexathienylbenzene units as potential hole-transport materials)
RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-

(9CI) (CA INDEX NAME)



REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 1999:3599 HCAPLUS |
| DOCUMENT NUMBER: | 130:153423 |
| TITLE: | **Ligand**-Accelerated Catalysis of the Ullmann Condensation: Application to Hole Conducting Triarylamines |
| AUTHOR(S): | Goodbrand, H. Bruce; Hu, Nan-Xing |
| CORPORATE SOURCE: | Xerox Research Centre of Canada, Mississauga, ON, L5K 2L1, Can. |
| SOURCE: | Journal of Organic Chemistry (**1999**), 64(2), 670-674<br>CODEN: JOCEAH; ISSN: 0022-3263 |
| PUBLISHER: | American Chemical Society |
| DOCUMENT TYPE: | Journal |
| LANGUAGE: | English |
| OTHER SOURCE(S): | CASREACT 130:153423 |

AB High-purity triarylamines, useful in xerog. photoreceptors as concentrated solid solns. in polymeric transport layers functioning as efficient hole conductors, were prepared via Ullmann condensations of aryl amines and aryl iodides modified by the addition of **copper**-binding **ligand** 1,10-phenanthroline. The new procedure moderates the severity of the conditions required to effect these reactions, and produces rapid and clean reactions at temps. 50-100° lower than previously required. The new catalyst system is applicable to bis(arylation) reactions and to large scale work. Thus, reaction of PhNH2 with 4-IC6H4Me in refluxing toluene containing CuCl, KOH flakes, and 1,10-phenanthroline for 5 h gave 73% PhN(C6H4Me-4)2.

IT **122-39-4**, Diphenylamine, reactions **1205-64-7**

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of triaryl amines by **copper** chloride-phenanthroline catalyzed Ullmann coupling of aryl amines with aryl iodides)

RN 122-39-4 HCAPLUS

CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph—NH—Ph

RN 1205-64-7 HCAPLUS

CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)

```
PATENT ASSIGNEE(S):       Tosoh Corporation, Japan
SOURCE:                   Eur. Pat. Appl., 20 pp.
                          CODEN: EPXXDW
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND    DATE          APPLICATION NO.          DATE
     ---------------     ----    --------      --------------------     --------
     EP 802173            A1     19971022      EP 1997-106367           19970417 <--
     EP 802173            B1     20011219
         R:  DE, FR, GB, NL
     JP 10081667          A2     19980331      JP 1997-97451            19970415 <--
     JP 3216566           B2     20011009
     JP 10139742          A2     19980526      JP 1997-97450            19970415 <--
     JP 3161360           B2     20010425
     US 5929281           A      19990727      US 1997-834231           19970415 <--
PRIORITY APPLN. INFO.:                         JP 1996-98388         A  19960419
                                               JP 1996-184469        A  19960715
                                               JP 1996-241724        A  19960912
OTHER SOURCE(S):          CASREACT 127:346419
AB   A heterocyclic aromatic halide or an aryl halide is reacted with an amine in
     the presence of a base to give a heterocyclic aromatic amine or an arylamine,
     resp.  A catalyst comprising a palladium compound and a tertiary
     phosphine is used for the preparation of a heterocyclic aromatic amine,
     and a catalyst comprising a palladium compound and a
     trialkylphosphine is used for the preparation of an arylamine.  Thus,
     piperazine was treated with 3-bromopyridine in o-xylene in presence of
     NaOCMe3 and a catalyst prepared from tris(dibenzylideneacetone)
     palladium and P(CMe3)3 to give 82% 1-(3-pyridyl)piperazine.
IT   3375-31-3, Palladium(II) acetate 6163-58-2,
     Tri-o-tolylphosphine 13716-12-6, Tri-tert-
     butylphosphine 17586-49-1, Tri-sec-
     butylphosphine 51364-51-3 52522-40-4
     RL: CAT (Catalyst use); USES (Uses)
        (palladium-phosphine catalysts in preparation of aryl-
        and heteroarylamines)
RN   3375-31-3  HCAPLUS
CN   Acetic acid, palladium(2+) salt (8CI, 9CI)  (CA INDEX NAME)
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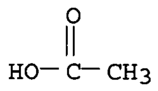

$HO-C(=O)-CH_3$

●1/2 Pd(II)

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RN   6163-58-2  HCAPLUS
CN   Phosphine, tris(2-methylphenyl)- (9CI)  (CA INDEX NAME)
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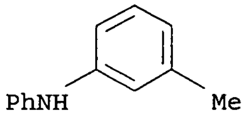
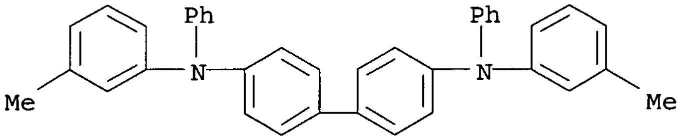
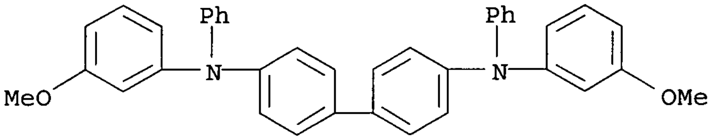


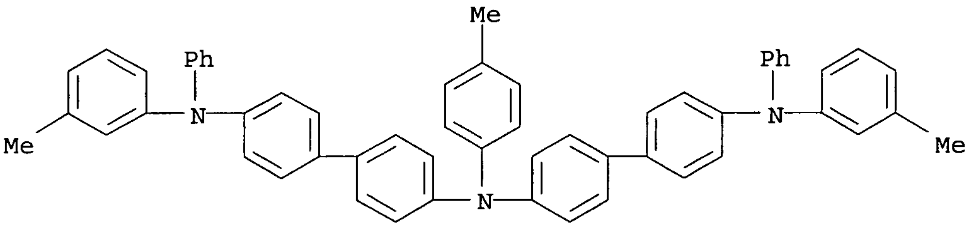
IT **65181-78-4P 105465-24-5P 204326-96-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of triaryl amines by **copper** chloride-phenanthroline catalyzed Ullmann coupling of aryl amines with aryl iodides)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 105465-24-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methoxyphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



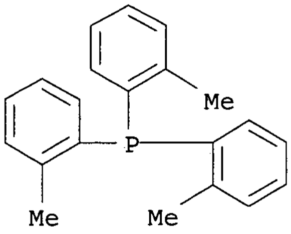
RN 204326-96-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N'-(4-methylphenyl)-N'-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N-phenyl- (9CI) (CA INDEX NAME)



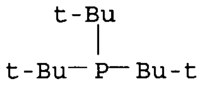
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L25 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2005 ACS on STN

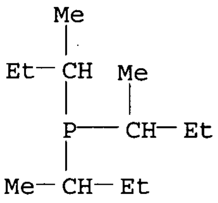
| | |
|---|---|
| ACCESSION NUMBER: | 1997:701833 HCAPLUS |
| DOCUMENT NUMBER: | 127:346419 |
| TITLE: | Process for producing heterocyclic aromatic amine or arylamine |
| INVENTOR(S): | Nishiyama, Masakazu; Koie, Yasuyuki |



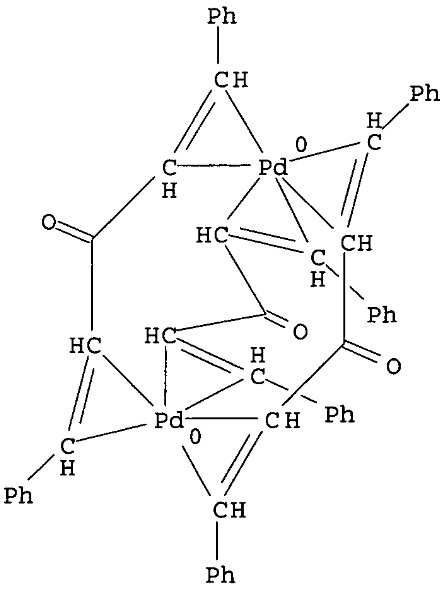
RN 13716-12-6 HCAPLUS
CN Phosphine, tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



RN 17586-49-1 HCAPLUS
CN Phosphine, tris(1-methylpropyl)- (9CI) (CA INDEX NAME)



RN 51364-51-3 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di- (9CI) (CA INDEX NAME)



RN 52522-40-4 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1) (9CI) (CA INDEX NAME)

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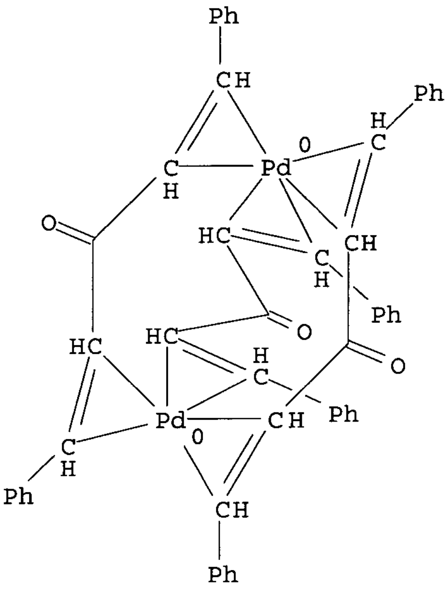
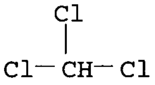
CRN 51364-51-3
CMF C51 H42 O3 Pd2
CCI CCS

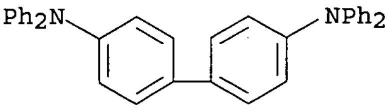


CM 2

CRN 67-66-3
CMF C H Cl3

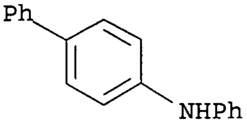


IT **15546-43-7P 32228-99-2P 65181-78-4P**
**105465-24-5P 142621-02-1P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(**palladium-phosphine** catalysts in preparation of aryl- and heteroarylamines)
RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



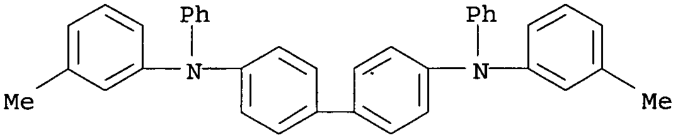
RN 32228-99-2 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, N-phenyl- (9CI) (CA INDEX NAME)



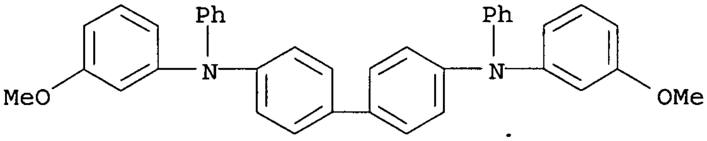
RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



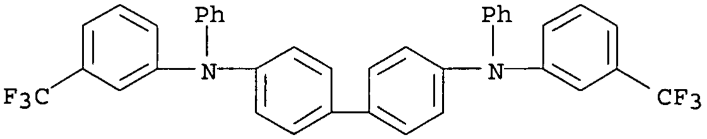
RN 105465-24-5 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methoxyphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 142621-02-1 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl-N,N'-bis[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



IT **122-39-4**, Diphenylamine, reactions **1205-64-7**, N-(3-Methylphenyl)aniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(**palladium-phosphine** catalysts in preparation of aryl- and heteroarylamines)

RN 122-39-4 HCAPLUS

```
CN   Benzenamine, N-phenyl- (9CI)  (CA INDEX NAME)
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Ph— NH— Ph

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RN   1205-64-7  HCAPLUS
CN   Benzenamine, 3-methyl-N-phenyl- (9CI)  (CA INDEX NAME)
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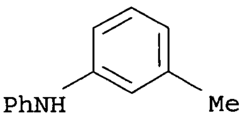

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=> □

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L1                STR
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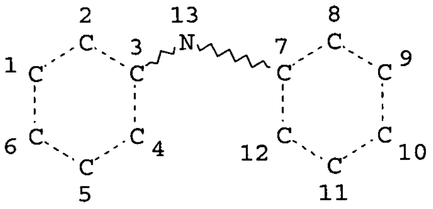

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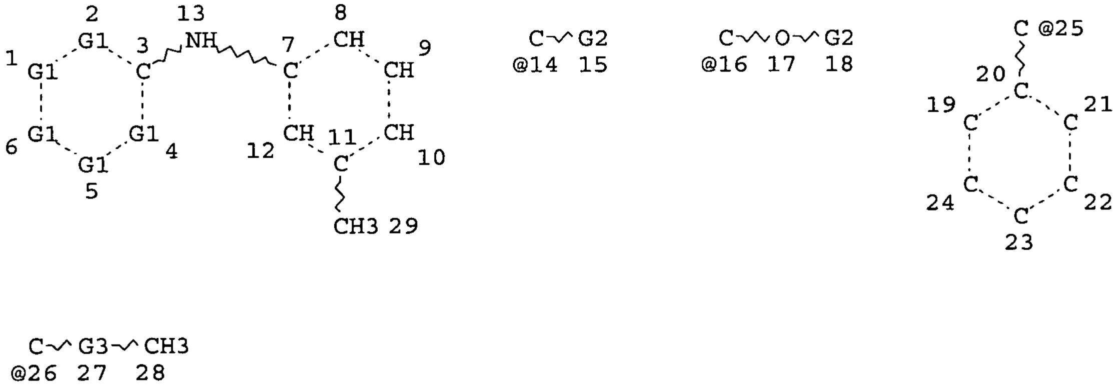

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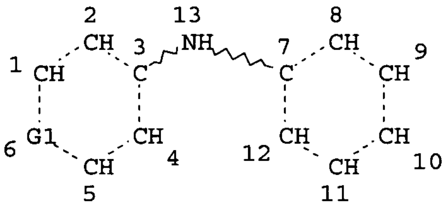

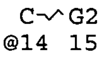

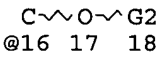

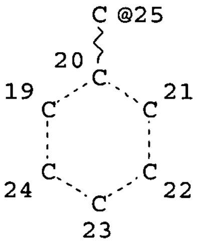

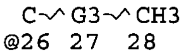

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GRAPH ATTRIBUTES:
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NUMBER OF NODES IS  28

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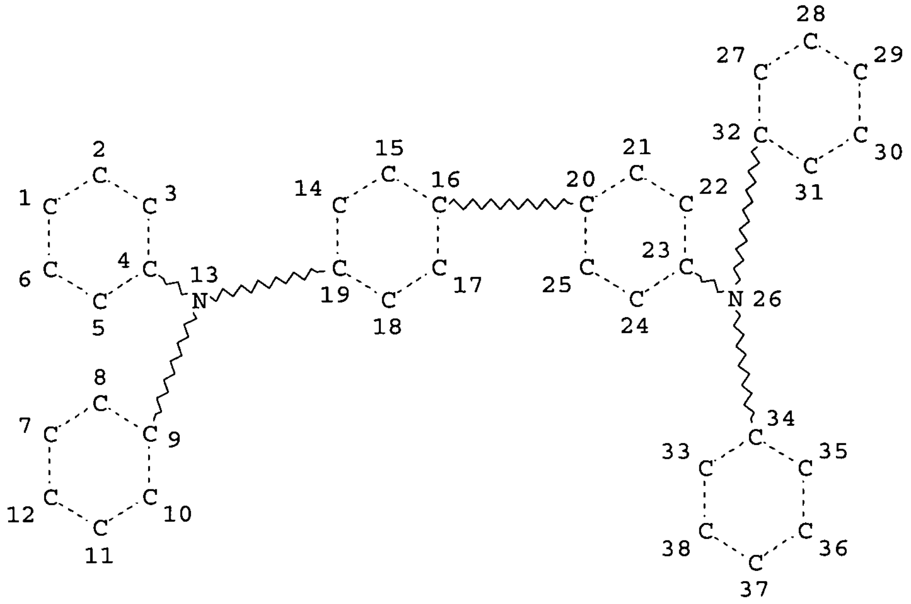

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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NUMBER OF NODES IS  38

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L12         4367 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9
L13           29 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L10 AND L11 AND L12
L14       271553 SEA FILE=REGISTRY ABB=ON  PLU=ON  METAL? OR PALLADIUM OR ZINC
L15       243338 SEA FILE=REGISTRY ABB=ON  PLU=ON  COPPER?/CN
L16       273644 SEA FILE=REGISTRY ABB=ON  PLU=ON  NICKEL?/CN
L19       176254 SEA FILE=REGISTRY ABB=ON  PLU=ON  PHENYL(L)PHOSPHINO?(L)(BINAPH
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L20       129892 SEA FILE=REGISTRY ABB=ON  PLU=ON  PHOSPHINE NOT L19
L21         4432 SEA FILE=REGISTRY ABB=ON  PLU=ON  LIGAND?
L22      4847030 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 OR L15 OR L16 OR METAL?
                OR PALLADIUM OR ZINC OR COPPER OR NICKEL
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L25            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 AND PD=<OCTOBER 8, 2003
L26          154 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND L22 AND L23
L27          555 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9(L)PREPARATION/RL
L28           45 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26 AND L27
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L31           65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L29 OR L13) NOT L25
L32           52 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L31 AND PD=<OCTOBER 8, 2003
L33           23 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L32 AND (SOLVENT OR BENZEN?
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=> d ibib abs hitstr l33 1-23

L33  ANSWER 1 OF 23  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:        2003:454383  HCAPLUS
DOCUMENT NUMBER:         139:36985
TITLE:                   Process for producing aryl-aryl coupled compounds and
                         polymers
INVENTOR(S):             Treacher, Kevin; Stoessel, Philipp; Spreitzer, Hubert;
                         Becker, Heinrich; Falcou, Aurelie
PATENT ASSIGNEE(S):      Covion Organic Semiconductors Gmbh, Germany
SOURCE:                  PCT Int. Appl., 31 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                German
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.       DATE
     ---------------     ----   --------    --------------------  --------
     WO 2003048225        A2    20030612    WO 2002-EP13584       20021202 <--
     WO 2003048225        A3    20031127
         W:  CN, JP, KR, US
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,
             LU, MC, NL, PT, SE, SI, SK, TR
     DE 10159946          A1    20030618    DE 2001-10159946      20011206 <--
     EP 1458783           A2    20040922    EP 2002-792850        20021202
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, FI, CY, TR, BG, CZ, EE, SK
     JP 2005511807        T2    20050428    JP 2003-549410        20021202
     US 2004260090        A1    20041223    US 2004-495003        20040823
PRIORITY APPLN. INFO.:                      DE 2001-10159946   A  20011206
                                            WO 2002-EP13584    W  20021202
OTHER SOURCE(S):         MARPAT 139:36985
AB   The efficiency of triphenylphosphine-free Pd compound-base mixts.
     as catalysts in the Suzuki reaction of halo- or sulfonyloxy-functional
     aryl or heteroaryl compds. with aromatic or heteroarom. boron compds. is
     improved by using a multiphase solvent mixture containing ≥0.1
     volume% water-soluble organic compound, water-insol. organic compound, and
water, with
     the stipulation that when alcs. or carbonyl compds. are used, they do not
     have α-H atoms.  A typical polymer was manufactured by polymerization of 50
mol%
     2,3,4,7-tetrakis(2-methylbutoxy)spirobifluorene-2,7-bis(Et boronate) with
     50 mol% 2,7-dibromo-9-(2,5-dimethylphenyl)-9-[3,4-bis(2-
     methylbutoxy)phenyl]fluorene in PhMe 15.6, dioxane 46.9, and water 8.5 mL
     in the presence of 4.56 mg tri-o-tolylphosphine, 0.56 mg
     Pd(OAc)2, and 4.89 g K3PO4.H2O.
IT   3375-31-3
     RL: CAT (Catalyst use); USES (Uses)
        (manufacture of spirobifluorene-containing compds. and polymers in presence
of
        bases and palladium compds. as aryl-aryl Suzuki coupling
        reaction catalysts in multiphase solvent mixts.)
RN   3375-31-3  HCAPLUS
CN   Acetic acid, palladium(2+) salt (8CI, 9CI)  (CA INDEX NAME)
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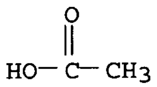
$\mathrm{HO-\overset{\overset{O}{\|}}{C}-CH_3}$

●1/2 Pd(II)

IT **463944-39-0P 501435-16-1P 540791-09-1P**
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(manufacture of spirobifluorene-containing compds. and polymers in presence of
bases and **palladium** compds. as aryl-aryl Suzuki coupling reaction catalysts in multiphase **solvent** mixts.)

RN 463944-39-0 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

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CRN 463944-36-7
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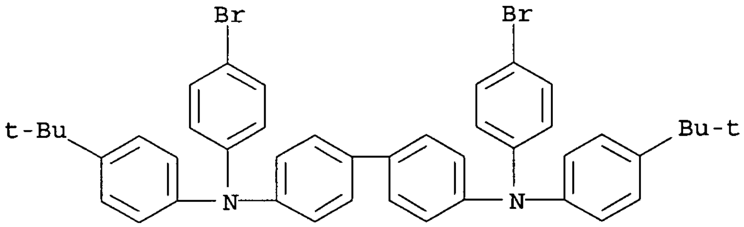

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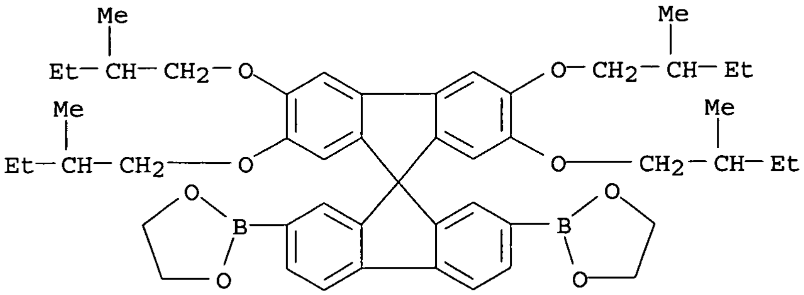

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CRN 396123-39-0
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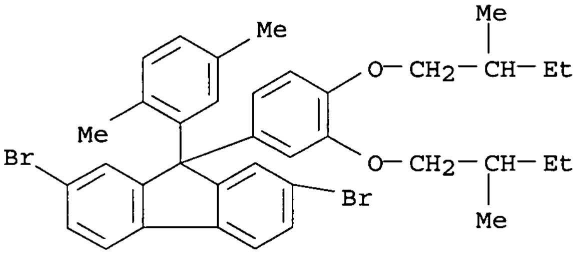

RN 501435-16-1 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 4,7-bis(5-bromo-2-thienyl)-2,1,3-benzothiadiazole, 4,7-dibromo-2,1,3-benzothiadiazole and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

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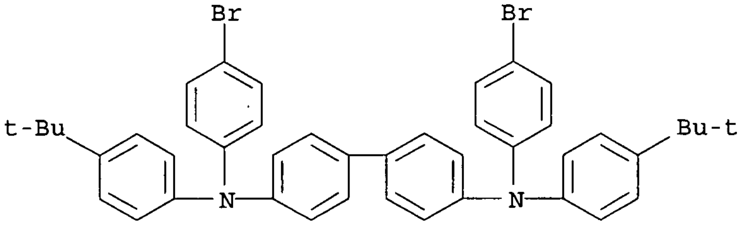

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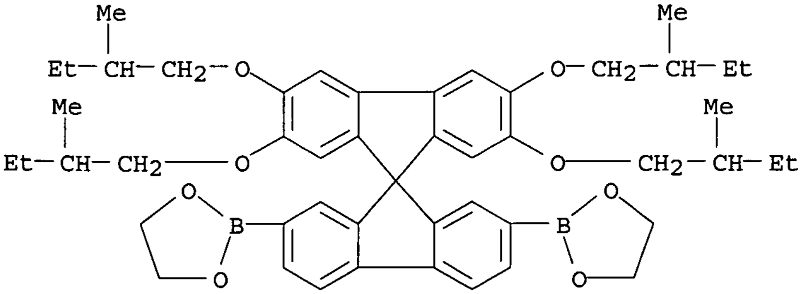

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CRN 288071-87-4
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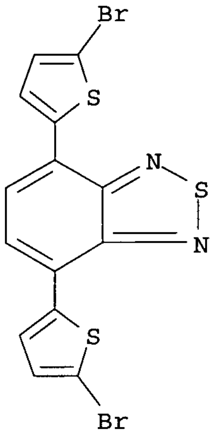
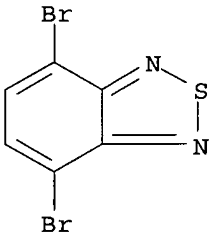


CM 4

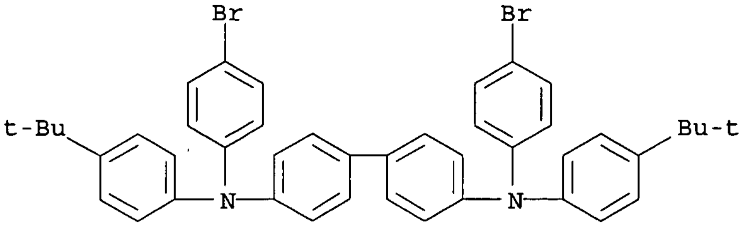
CRN 15155-41-6
CMF C6 H2 Br2 N2 S



RN 540791-09-1 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

CM 1

CRN 463944-36-7
CMF C44 H42 Br2 N2



CM 2

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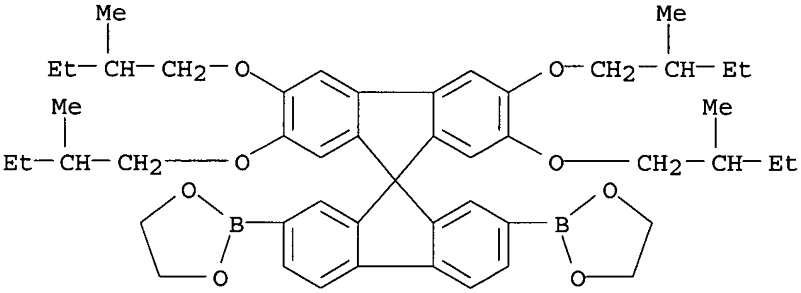
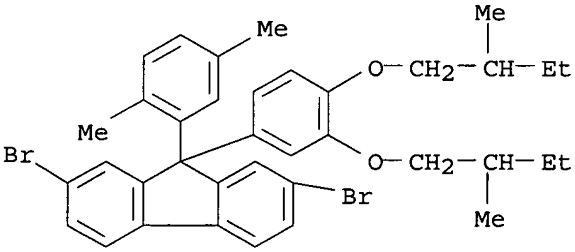
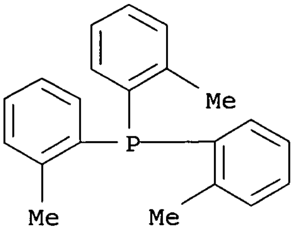


CM 3

CRN 396123-39-0
CMF C37 H40 Br2 O2



IT **6163-58-2**, Tri-o-**tolylphosphine**
RL: CAT (Catalyst use); USES (Uses)
(**palladium** complexing component; manufacture of spirobifluorene-containing compds. and polymers in presence of bases and **palladium** compds. as aryl-aryl Suzuki coupling reaction catalysts in multiphase **solvent** mixts.)
RN 6163-58-2 HCAPLUS
CN Phosphine, tris(2-methylphenyl)- (9CI) (CA INDEX NAME)



L33 ANSWER 2 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:356399 HCAPLUS

DOCUMENT NUMBER: 138:368629

TITLE: Preparation of spiro-9,9'-bifluorenylarylamines and related compounds via the **nickel** or **palladium** mediated coupling of secondary amines and aromatics

INVENTOR(S): Stoessel, Philipp; Spreitzer, Hubert; Becker, Heinrich

PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany

SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

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     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
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     WO 2003037844        A1    20030508    WO 2002-EP11942        20021025 <--
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         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,
             LU, MC, NL, PT, SE, SK, TR
     DE 10153450          A1    20030522    DE 2001-10153450       20011030 <--
     EP 1442007           A1    20040804    EP 2002-783005         20021025
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI, CY, TR, BG, CZ, EE, SK
     US 2005054854        A1    20050310    US 2004-494081         20041029
PRIORITY APPLN. INFO.:                      DE 2001-10153450    A  20011030
                                            WO 2002-EP11942     W  20021025
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OTHER SOURCE(S): CASREACT 138:368629

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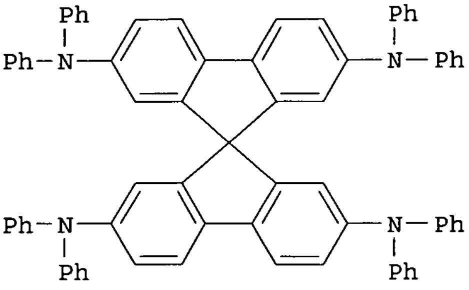


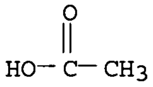
I

AB A process for the preparation of tertiary amines (ArNR1R2) via the

**nickel** or **palladium** mediated coupling of secondary amines (H-NR1R2) with aroms. (Ar-(X)n) [Ar = (un)substituted aromatic, heteroarom.; R1, R2 = trichloroethylene, (un)substituted alkyl; X = reactive leaving group (sic); n = 1-10] in the presence of a base and a **phosphine** is disclosed. For example, to a degassed suspension of 2,2',7,7'-tetrabromo-9,9'-spirobifluorene (50 mmol), sodium tert-butoxide (315 mmol) in toluene (400 mL) was added bis(1,1-dimethylethyl)phosphinous chloride (2 mmol). After 5 min, **palladium** (II) acetate (1 mmol) and diphenylamine (225 mmol) was added sequentially, and the reaction heated at reflux for 2 h. The reaction was cooled, and after aqueous work-up provided bifluorenyl arylamine I in 97% yield. The tertiary amines (ArNR1R2) are claimed useful as reagents or intermediates for pharmaceuticals, agrochems., electronics chems. etc.

IT **3375-31-3**, **Palladium** (II) acetate **51364-51-3**,
Pd2(dba)3
RL: CAT (Catalyst use); USES (Uses)
(preparation of spirobifluorenylarylamines and related compds. via the **nickel** or **palladium** mediated coupling of secondary amines and aroms.)

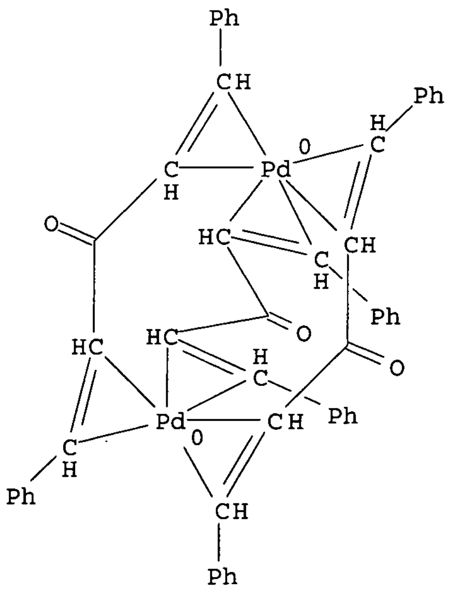
RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



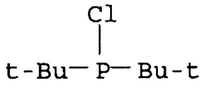
$HO-\overset{\overset{O}{\|}}{C}-CH_3$

●1/2 Pd(II)

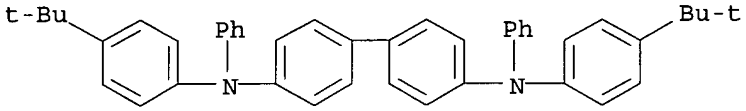
RN 51364-51-3 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di- (9CI) (CA INDEX NAME)



IT **13716-10-4**, Chloro Di-tert-**butylphosphine**
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of spirobifluorenylarylamines and related compds. via the **nickel** or **palladium** mediated coupling of secondary amines and aroms.)
RN 13716-10-4 HCAPLUS
CN Phosphinous chloride, bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



IT **167218-44-2P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(product; preparation of spirobifluorenylarylamines and related compds. via the **nickel** or **palladium** mediated coupling of secondary amines and aroms.)
RN 167218-44-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 3 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 2003:58402 HCAPLUS |
| DOCUMENT NUMBER: | 138:122987 |
| TITLE: | Production of emissive block-containing block copolymers for electroluminescent devices |
| INVENTOR(S): | Wu, Weishi; Inbasekaran, Michael; Bernius, Mark T.; O'Brien, James J. |
| PATENT ASSIGNEE(S): | The Dow Chemical Company, USA |
| SOURCE: | PCT Int. Appl., 25 pp.<br>CODEN: PIXXD2 |
| DOCUMENT TYPE: | Patent |
| LANGUAGE: | English |
| FAMILY ACC. NUM. COUNT: | 1 |
| PATENT INFORMATION: | |

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2003007395 | A1 | 20030123 | WO 2002-US22308 | 20020710 <-- |

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CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT,
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT,
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG,
UZ, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,

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         PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
         NE, SN, TD, TG
     CA 2448514          AA     20030123    CA 2002-2448514        20020710 <--
     US 2003045642       A1     20030306    US 2002-193410         20020710 <--
     US 6815505          B2     20041109
     EP 1407500          A1     20040414    EP 2002-750024         20020710
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, MC, PT, IE,
             SI, LT, LV, FI, RO, MK, CY, AL, BG, CZ, EE
     TW 593627           B      20040621    TW 2002-91115310       20020710
     JP 2005515264       T2     20050526    JP 2003-513057         20020710
PRIORITY APPLN. INFO.:                      US 2001-304336P     P  20010710
                                            WO 2002-US22308     W  20020710
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AB An organic block copolymer useful in an electroluminescent polymer device comprises (a) an emissive polymer block that is conjugated along the backbone of the emissive polymer block, and at least one of the blocks (b) a pos. charge carrier polymer block that is conjugated along the backbone of the pos. charge carrier polymer block for transporting pos. charge carriers to the emissive polymer block so that the pos. charge carriers can combine with the neg. charge carriers to generate light, (c) a neg. charge carrier polymer block that is conjugated along the backbone of the neg. charge carrier polymer block for transporting neg. charge carriers to the emissive polymer block so that the neg. charge carriers can combine with the pos. charge carriers to generate light, and (d) a host block that is conjugated along the backbone of the host block for providing a matrix for emitter that affords Forster energy transfer and minimization of quenching effects. Thus, a blue-emitting copolymer having a diblock-type structure was produced in toluene in the presence of tetrakis(**triphenylphosphine**)**palladium** and Aliquat 336 phase-transfer agent. The copolymer comprised an emissive block produced by reacting 2,7-dibromo-9,9-dihexylfluorene, 9,10-dibromoanthracene and 9,9-dihexylfluorene-2,7-bisboronate, and a pos. charge carrier block produced by reacting N,N'-bis(4-bromophenyl)-N,N'-bis(3-ethoxycarbonylphenyl)benzidine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-methoxyphenyl)-1,4-**benzenediamine** and 9,9-dihexylfluorene-2,7-bisboronate in the presence of the emissive block.

IT **489426-87-1DP**, phenyl-terminated **489426-88-2DP**, phenyl-terminated **727682-07-7DP**, phenyl-terminated **785792-92-9DP**, phenyl-terminated
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(diblock; production of emissive block-containing block copolymers for electroluminescent devices)

RN 489426-87-1 HCAPLUS

CN Benzoic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis[(4-bromophenyl)imino]]bis-, diethyl ester, polymer with N,N'-bis(4-bromophenyl)-N,N'-bis(4-methoxyphenyl)-1,4-benzenediamine, 9,10-dibromoanthracene, 2,7-dibromo-9,9-dihexyl-9H-fluorene and 2,2'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

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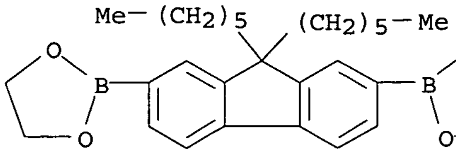
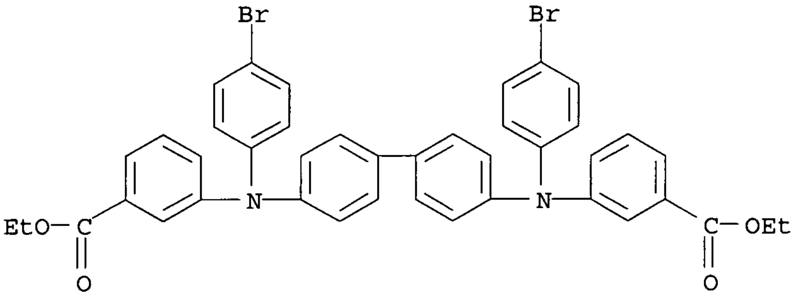
CRN 251981-85-8
CMF C29 H40 B2 O4



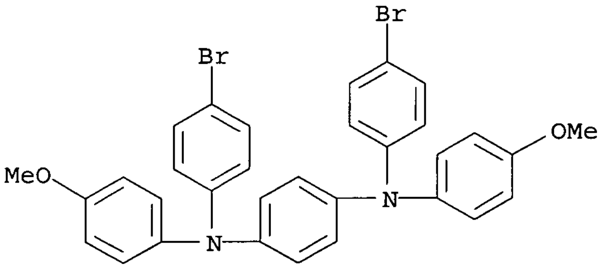
CM 2

CRN 251981-68-7
CMF C42 H34 Br2 N2 O4



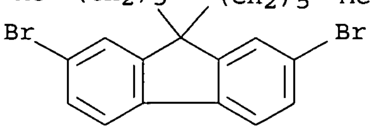
CM 3

CRN 202873-04-9
CMF C32 H26 Br2 N2 O2



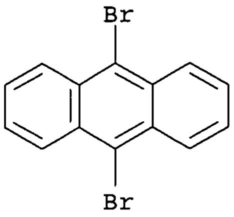
CM 4

CRN 189367-54-2
CMF C25 H32 Br2



CM 5

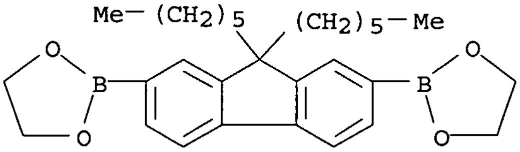
CRN 523-27-3
CMF C14 H8 Br2



RN 489426-88-2 HCAPLUS
CN Benzoic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis[(4-bromophenyl)imino]]bis-, diethyl ester, polymer with 4,7-dibromo-2,1,3-benzothiadiazole, 2,7-dibromo-9,9-dihexyl-9H-fluorene, 2,2'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane], 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane] and 1,1'-(1,2-ethenediyl)bis[4-bromobenzene], block (9CI) (CA INDEX NAME)

CM 1

CRN 251981-85-8
CMF C29 H40 B2 O4



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CRN 251981-68-7
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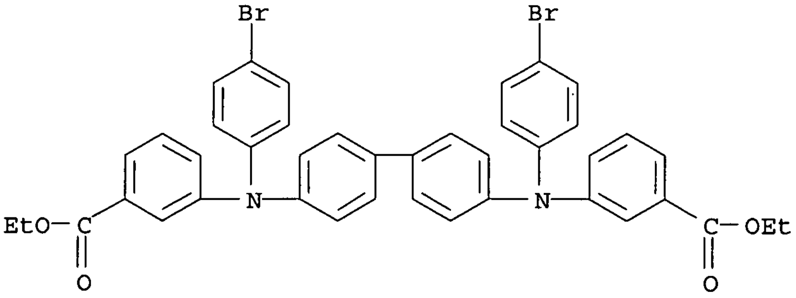

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CRN 210347-49-2
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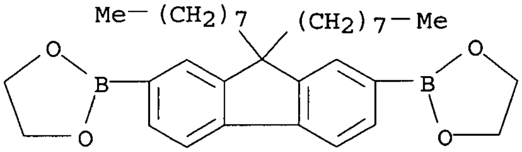
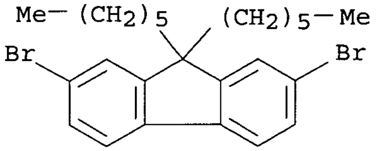


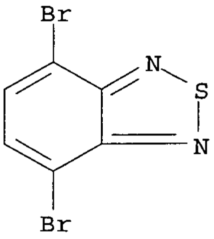
CM 4

CRN 189367-54-2
CMF C25 H32 Br2



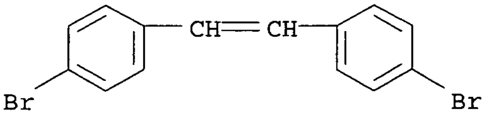
CM 5

CRN 15155-41-6
CMF C6 H2 Br2 N2 S



CM 6

CRN 2765-14-2
CMF C14 H10 Br2

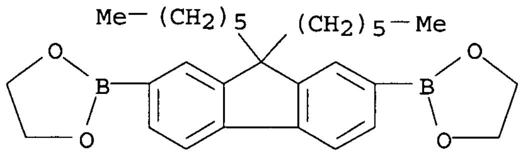


RN 727682-07-7 HCAPLUS
CN Benzoic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis[(4-bromophenyl)imino]]bis-

, diethyl ester, polymer with N,N'-bis(4-bromophenyl)-N,N'-bis(4-methoxyphenyl)-1,4-benzenediamine, 9,10-dibromoanthracene, 2,7-dibromo-9,9-dihexyl-9H-fluorene and 2,2'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane], diblock (9CI)   (CA INDEX NAME)

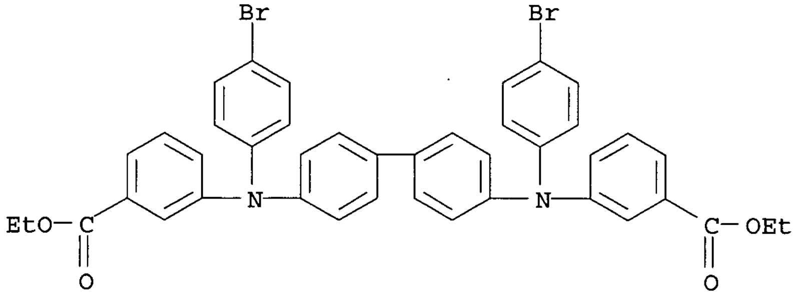
CM   1

CRN  251981-85-8
CMF  C29 H40 B2 O4



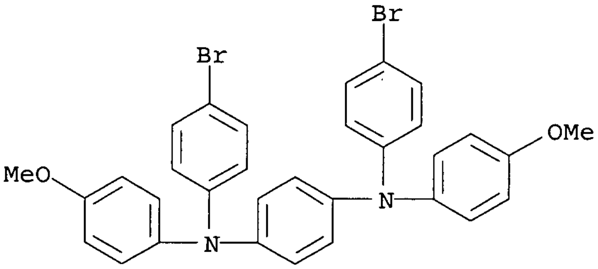
CM   2

CRN  251981-68-7
CMF  C42 H34 Br2 N2 O4



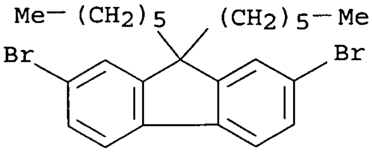
CM   3

CRN  202873-04-9
CMF  C32 H26 Br2 N2 O2



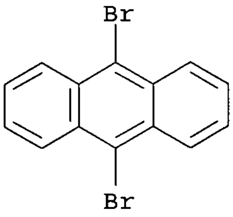
CM   4

CRN 189367-54-2
CMF C25 H32 Br2



CM 5

CRN 523-27-3
CMF C14 H8 Br2

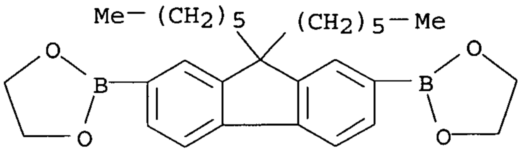


RN 785792-92-9 HCAPLUS

CN Benzoic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis[(4-bromophenyl)imino]]bis-, diethyl ester, polymer with 4,7-dibromo-2,1,3-benzothiadiazole, 2,7-dibromo-9,9-dihexyl-9H-fluorene, 2,2'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane], 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane] and 1,1'-(1,2-ethenediyl)bis[4-bromobenzene], diblock (9CI) (CA INDEX NAME)

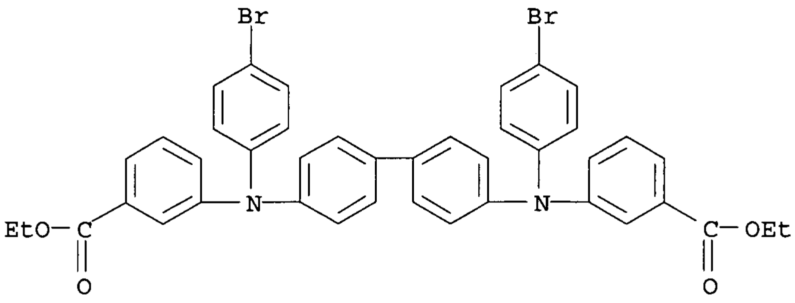
CM 1

CRN 251981-85-8
CMF C29 H40 B2 O4



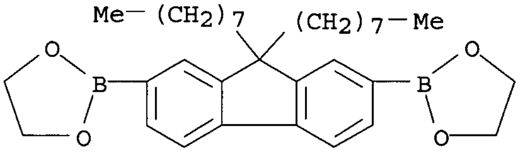
CM 2

CRN 251981-68-7
CMF C42 H34 Br2 N2 O4



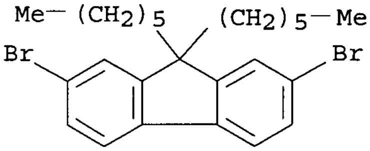
CM 3

CRN 210347-49-2
CMF C33 H48 B2 O4



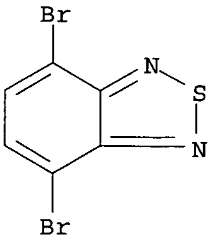
CM 4

CRN 189367-54-2
CMF C25 H32 Br2



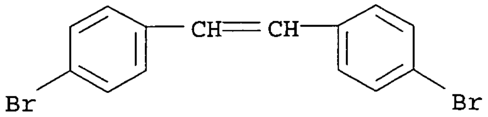
CM 5

CRN 15155-41-6
CMF C6 H2 Br2 N2 S



CM 6

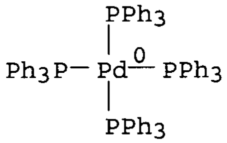
CRN 2765-14-2
CMF C14 H10 Br2



IT **14221-01-3**, Tetrakis(**triphenylphosphine**)
**palladium**
RL: CAT (Catalyst use); USES (Uses)
(production of emissive block-containing block copolymers for electroluminescent devices)

RN 14221-01-3 HCAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (9CI) (CA INDEX NAME)



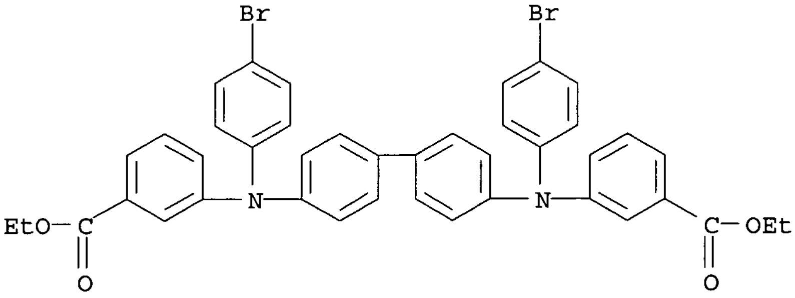
IT **489426-89-3DP**, phenyl-terminated
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(production of emissive block-containing block copolymers for electroluminescent devices)

RN 489426-89-3 HCAPLUS

CN Benzoic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis[(4-bromophenyl)imino]]bis-, diethyl ester, polymer with 4,7-dibromo-2,1,3-benzothiadiazole, 2,7-dibromo-9,9-dioctyl-9H-fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

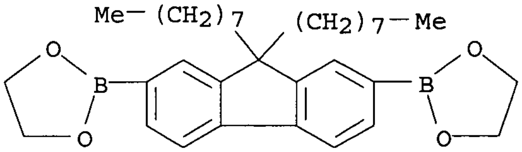
CM 1

CRN 251981-68-7
CMF C42 H34 Br2 N2 O4



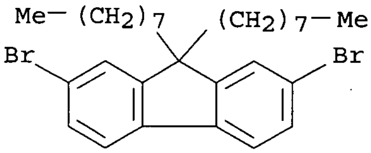
CM 2

CRN 210347-49-2
CMF C33 H48 B2 O4



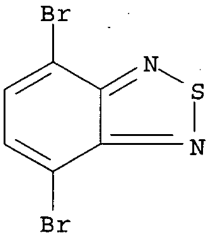
CM 3

CRN 198964-46-4
CMF C29 H40 Br2



CM 4

CRN 15155-41-6
CMF C6 H2 Br2 N2 S



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 4 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:32888 HCAPLUS
DOCUMENT NUMBER: 138:245268
TITLE: New class of hole-blocking amorphous molecular materials and their application in blue-violet-emitting fluorescent and green-emitting phosphorescent organic electroluminescent devices
AUTHOR(S): Okumoto, Kenji; Shirota, Yasuhiko
CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Osaka University, Yamadaoka, Suita, Osaka, 565-0871, Japan

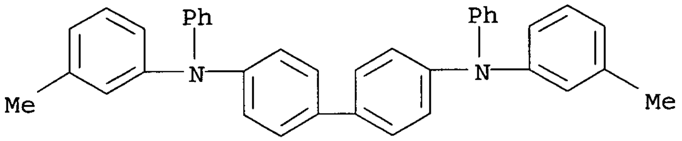
SOURCE: Chemistry of Materials (**2003**), 15(3), 699-707
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A new class of hole-blocking amorphous mol. materials for use in organic electroluminescent (EL) devices were developed, which include 1,3,5-tri(4-biphenylyl)**benzene**, 1,3,5-tris(4-fluorobiphenyl-4'-yl)**benzene** (F-TBB), 1,3,5-tris(9,9-dimethylfluoren-2-yl) **benzene**, and 1,3,5-tris[4-(9,9-dimethylfluoren-2-yl)phenyl] **benzene.** They readily form stable amorphous glasses with well-defined glass-transition temps. and are characterized by relatively high oxidation potentials and large HOMO-LUMO energy gaps. The use of these materials as hole blockers enabled blue-violet emission from several emitting amorphous mol. materials with hole-transporting properties in organic EL devices. A multilayer organic EL device using N,N-bis(9,9-dimethylfluoren-2-yl)aniline (F2PA) as a blue-violet emitter, F-TBB as a hole blocker, and 4,4',4''-tris[3-methylphenyl(phenyl)amino]triphenylamine and tris(8-quinolinolato)aluminum as hole and electron transporters, resp., exhibited blue-violet emission peaking at 405 nm with a high external quantum efficiency of 1.95%. This device also enabled the doping of a phosphorescent Ir complex, tris(2-phenylpyridine)iridium (Ir(ppy)3), tuning the emission color from blue violet to green by excitation energy transfer from F2PA to Ir(ppy)3.

IT **65181-78-4**, TPD
RL: DEV (Device component use); USES (Uses)
(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 65181-78-4 HCAPLUS

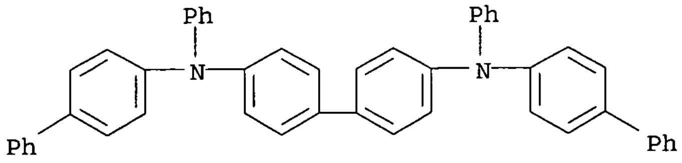
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



IT **134008-76-7P**
RL: DEV (Device component use); SPN (Synthetic preparation); **PREP (Preparation)**; USES (Uses)
(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 134008-76-7 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



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IT   14221-01-3, Tetrakis(triphenylphosphine)
     palladium
     RL: CAT (Catalyst use); USES (Uses)
        (synthesis of F-TBB, TFB, TFPB; synthesis of organic hole-blocking
        amorphous mol. materials and application in fluorescent and
        phosphorescent organic electroluminescent devices)
RN   14221-01-3  HCAPLUS
CN   Palladium, tetrakis(triphenylphosphine)-, (T-4)- (9CI)  (CA INDEX NAME)
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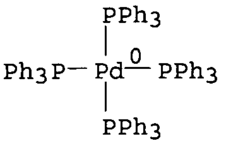

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IT   7440-50-8, Copper, uses
     RL: CAT (Catalyst use); USES (Uses)
        (synthesis of N-(9,9-Dimethylfluoren-2-yl)aniline, 1,3,5-tris(4-
        iodophenyl)benzene, PFFA; synthesis of organic hole-blocking
        amorphous mol. materials and application in fluorescent and
        phosphorescent organic electroluminescent devices)
RN   7440-50-8  HCAPLUS
CN   Copper (7CI, 8CI, 9CI)  (CA INDEX NAME)


Cu

REFERENCE COUNT:         45     THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS
                                RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33  ANSWER 5 OF 23  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:        2003:6031  HCAPLUS
DOCUMENT NUMBER:         138:56847
TITLE:                   Preparation of polymer containing substituted
                         triphenylamine units for optical devices
INVENTOR(S):             Towns, Carl; O'dell, Richard
PATENT ASSIGNEE(S):      Cambridge Display Technology Limited, UK
SOURCE:                  PCT Int. Appl., 35 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

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     WO 2003000773        A1    20030103    WO 2002-GB2803         20020620 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
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             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
             UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
             TJ, TM
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             CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
         BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     EP 1397416          A1    20040317    EP 2002-740886          20020620
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     JP 2004532348       T2    20041021    JP 2003-507173          20020620
     US 2004254324       A1    20041216    US 2004-481439          20040517
PRIORITY APPLN. INFO.:                     GB 2001-15348       A   20010622
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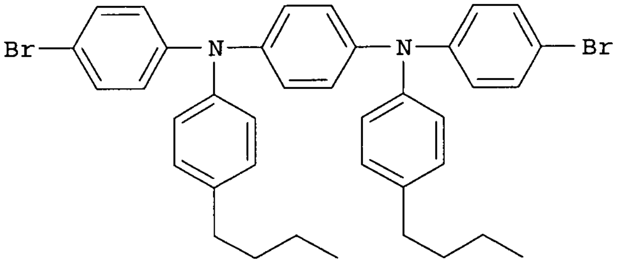
GI



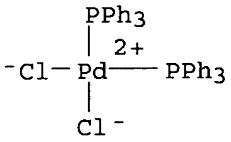
I

AB The polymer containing a first repeat unit -ArN(R)Ar-[N(R')Ar]x- (x = 0, 1; Ar = (un)substituted aryl or heteroaryl; R, R' = H, a substituent) and a second repeat unit that is the same or different from the first repeat unit and comprises a substituted or unsubstituted, aryl or heteroaryl group is made by Suzuki polymerization of (a) a first monomer having the first repeat unit and two reactive boron derivative groups with a second monomer having the second repeat unit and ≥2 reactive halide functional groups; or (b) a first monomer having the first repeat unit and one reactive halide functional group and one reactive boron derivative group with a second monomer having the second repeat unit and one reactive halide functional group and one reactive boron derivative group in the presence of a base and a catalyst. The polymers are useful for optical devices such as electroluminescent devices. Thus, 4.79 g dibromo-PFB I was mixed with 5 g pinacol diester of PFB boronic acid and 25 mg dichlorobis(**triphenylphosphine**) **palladium** in 100 mL toluene and end-capped with bromobenzene and glycol ester of **benzeneboronic** acid to give 6.3 g polymer with number average mol. weight 23,000.

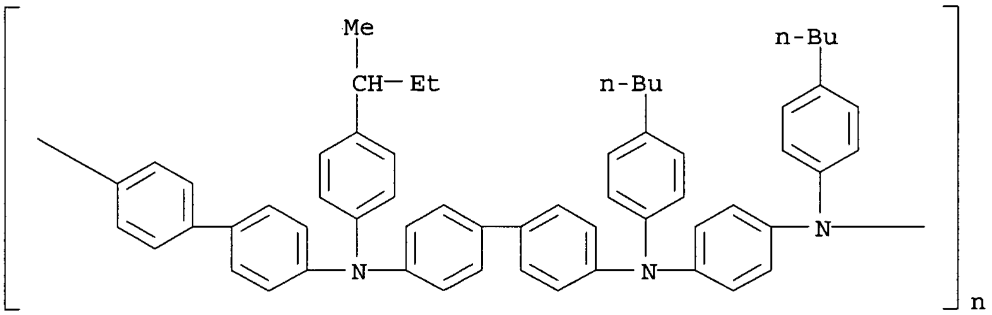
IT **13965-03-2**, Dichlorobis(**triphenylphosphine**) **palladium**
RL: CAT (Catalyst use); USES (Uses)
(preparation of polymer containing substituted triphenylamine units for optical devices)

RN 13965-03-2 HCAPLUS

CN Palladium, dichlorobis(triphenylphosphine)- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT **479517-33-4DP**, reaction products with bromobenzene and glycol
**benzeneboronate**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(preparation of polymer containing substituted triphenylamine units for optical devices)
RN 479517-33-4 HCAPLUS
CN Poly[[(4-butylphenyl)imino]-1,4-phenylene[(4-butylphenyl)imino][1,1'-biphenyl]-4,4'-diyl[[4-(1-methylpropyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)

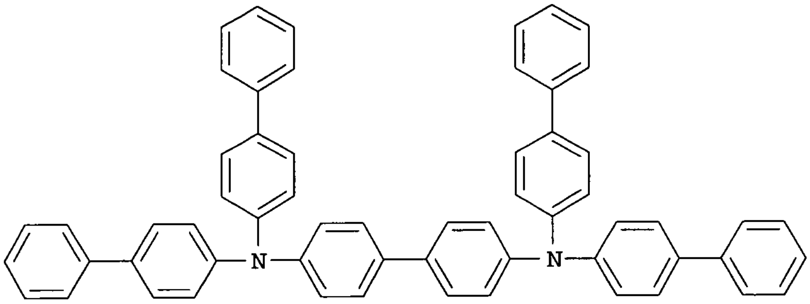


REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 6 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:754337 HCAPLUS
DOCUMENT NUMBER: 137:262855
TITLE: Method for producing aromatic amino compound by arylation reaction of amines with aryl halides promoted by noble **metals**
INVENTOR(S): Iwakuma, Toshihiro; Moriwaki, Fumio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| WO 2002076922 | A1 | 20021003 | WO 2002-JP2132 | | 20020307 | <-- |
| W: CN, IN, JP, KR, US | | | | | | |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR | | | | | | |
| CN 1501908 | A | 20040602 | CN 2002-806614 | | 20020307 | |
| US 2004082813 | A1 | 20040429 | US 2003-469702 | | 20030912 | |
| PRIORITY APPLN. INFO.: | | | JP 2001-76302 | A | 20010316 | |
| | | | WO 2002-JP2132 | W | 20020307 | |

OTHER SOURCE(S): CASREACT 137:262855; MARPAT 137:262855
GI



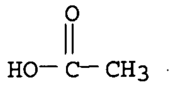
II

AB Claimed is a method for producing an aromatic amino compound represented by the general formula Ar1-N(Ar2)-H (wherein Ar1 and Ar2 are each a substituted or non-substituted hydrocarbon group having 2 to 50 carbon atoms or a heterocyclic group), which comprises reacting an amino compound represented by the general formula H2N-R1 (wherein R1 is a substituent having 2 to 50 carbon atoms) with a aryl halide mixture represented by the general formula Ar1-X and Ar2-X (wherein Ar1 and Ar2 are as defined above and X is a halogen) in the presence of a noble **metal** catalyst, to synthesize an aromatic amino compound intermediate represented by the general formula Ar1-N(Ar1)-R1, and removing the substituent R1 of this compound The method can be employed for producing an aromatic amino compound in high yield with good efficiency, without the use of a highly toxic raw material such as β-naphthylamine, 4-aminodiphenyl, or benzidine which is designated as a special chemical and whose production is banned in Japan. Aromatic amino compds. are useful as elec. charge transporting materials for electrophotog. photoreceptors and organic electroluminescence devices. Thus, 60 mL dry toluene, 2.04 mmol benzylamine, and a toluene solution of tris(tert-butyl)**phosphine** (2.22 M, 169 μL, 0.374 mmol) were added to 10.0 g 4-bromobiphenyl, 4.32 g potassium tert-butoxide, and 42.0 mg Pd(OAc)2 under Ar and stirred at room temperature for 15 min and 120° for 7.5 h to give 87% N,N-di(4-biphenylyl)benzylamine which (1.35 g) was hydrogenolyzed over 135 mg 10% Pd-C in a mixture of 100 mL CHCl3 and 20 mL **ethanol** under vigorous stirring at room temperature for 30 h to give 94% di(4-biphenylyl)amine (I). Dry toluene (10 mL) and a toluene solution of tris(tert-butyl)**phosphine** (2.22 M, 13.4 μL, 0.0296 mmol) were added to 500 mg I, 231 mg 4,4'-dibromobiphenyl, 157 mg potassium tert-butoxide, and 3.4 mg Pd(OAc)2 under Ar and gradually heated to 115° with stirring and stirred at 115° for 6 h to give 77% N,N,N',N'-tetra(4-biphenylyl)benzidine (II).

IT **3375-31-3** **13716-12-6**, Tris-tert-**butylphosphine**
**51364-51-3**, Tris(dibenzylideneacetone) dipalladium
**76189-56-5**, (S)-BINAP
RL: CAT (Catalyst use); USES (Uses)
(method for producing aromatic amino compds. as elec. charge transporting materials for electrophotog. photoreceptors and organic electroluminescence devices)

RN 3375-31-3 HCAPLUS

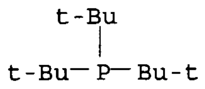
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



$HO-C(=O)-CH_3$

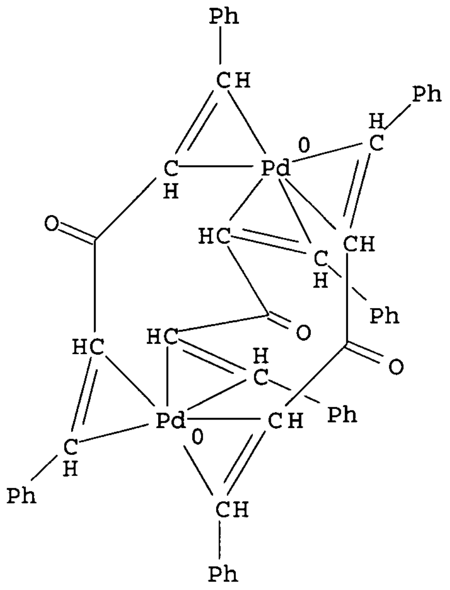
●1/2 Pd(II)

RN 13716-12-6 HCAPLUS
CN Phosphine, tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

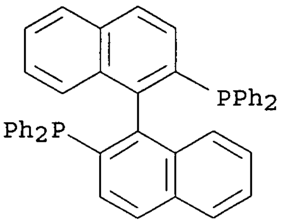


$(t\text{-Bu})_2P-\text{Bu-t}$

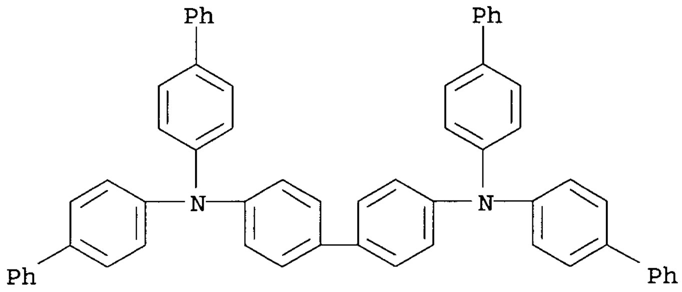
RN 51364-51-3 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di- (9CI) (CA INDEX NAME)



RN 76189-56-5 HCAPLUS
CN Phosphine, (1S)-[1,1'-binaphthalene]-2,2'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



IT **164724-35-0P**
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(method for producing aromatic amino compds. as elec. charge transporting materials for electrophotog. photoreceptors and organic electroluminescence devices)
RN 164724-35-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 7 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:591721 HCAPLUS
DOCUMENT NUMBER: 137:147552
TITLE: Polymeric fluorescent substances for polymer light emitting devices and production method thereof
INVENTOR(S): Noguchi, Takanobu; Tsubata, Yoshiaki; Doi, Shuji
PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan
SOURCE: Eur. Pat. Appl., 32 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

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     PATENT NO.          KIND   DATE       APPLICATION NO.       DATE
     ---------------     ----   --------   --------------------   --------
     EP 1229063           A2    20020807   EP 2002-250742         20020204 <--
     EP 1229063           A3    20020814
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
     WO 2002102925        A1    20021227   WO 2001-JP5219         20010619 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,
             HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU,
             LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD,
             SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU,
             ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
             DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
             BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     US 2002177687       A1    20021128   US 2002-62223          20020204 <--
     US 6905785          B2    20050614
     JP 2002338665       A2    20021127   JP 2002-27908          20020205 <--
     US 2004234810       A1    20041125   US 2004-480996         20040520
PRIORITY APPLN. INFO.:                    JP 2001-28001       A  20010205
                                          JP 2001-71776       A  20010314
                                          WO 2001-JP5219      W  20010619
```

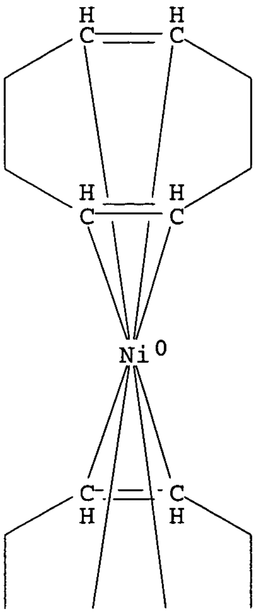
AB Provided is a method of producing a polymeric fluorescent substance wherein one or more monomers X1Ar1X2 (wherein Ar1 represents a divalent group selected from arylene groups, divalent heterocyclic compound groups, and divalent or trivalent hetero atom-bonded arylene or divalent heterocyclic compound groups, and X1 and X2 represent leaving groups) are polymerized in the presence of a zerovalent **nickel** complex. By using the polymeric fluorescent substance, a high performance polymer LED can easily be obtained. Thus, 0.82 g 2,7-dibromo-9,9-dioctylfluorene was polymerized in the presence of 0.55 g 2,2'-bipyridyl **ligand** and 0.96 g bis(1,5-cyclooctadiene) **nickel**(0) polymerization catalyst in THF to give a polymer with weight average mol. weight 5.4 + 105, number average mol. weight 1.7 + 105, fluorescent peak at 428 nm, and relative fluorescent intensity 4.0, which was used to prepare a light emitting device.

IT **1295-35-8**, Bis(1,5-cyclooctadiene) **nickel**(0)
RL: CAT (Catalyst use); USES (Uses)
(polymerization catalyst; preparation of fluorescent polymers for polymer light emitting devices)

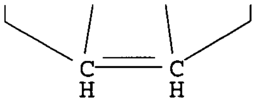
RN 1295-35-8 HCAPLUS

CN Nickel, bis[(1,2,5,6-η)-1,5-cyclooctadiene]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



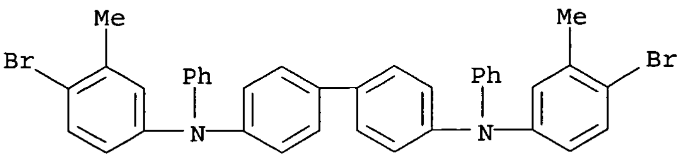
IT **444795-96-4P 444795-99-7P 444796-27-4P**
RL: DEV (Device component use); IMF (Industrial manufacture); **PREP (Preparation)**; USES (Uses)
(preparation of fluorescent polymers for polymer light emitting devices)

RN 444795-96-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromo-3-methylphenyl)-N,N'-diphenyl-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI) (CA INDEX NAME)

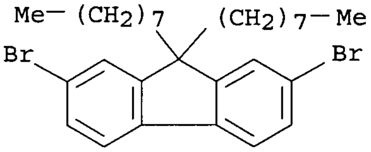
CM 1

CRN 444795-95-3
CMF C38 H30 Br2 N2



CM 2

CRN 198964-46-4
CMF C29 H40 Br2

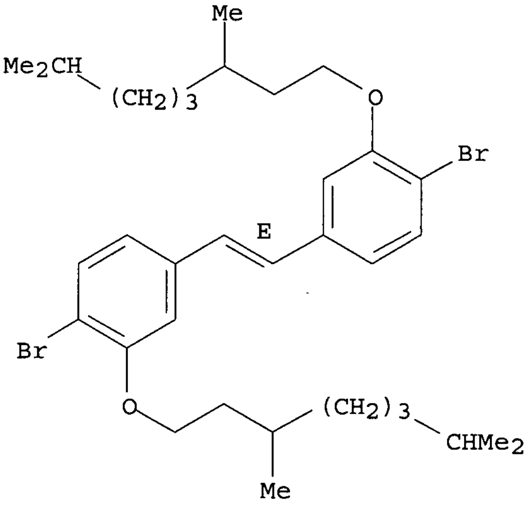


RN 444795-99-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromo-3-methylphenyl)-N,N'-diphenyl-, polymer with 2,7-dibromo-9,9-dioctyl-9H-fluorene and 1,1'-(1E)-1,2-ethenediylbis[4-bromo-3-[(3,7-dimethyloctyl)oxy]benzene] (9CI) (CA INDEX NAME)

CM 1

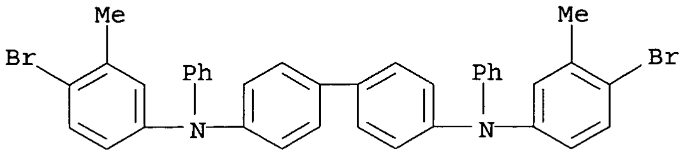
CRN 444795-98-6
CMF C34 H50 Br2 O2

Double bond geometry as shown.



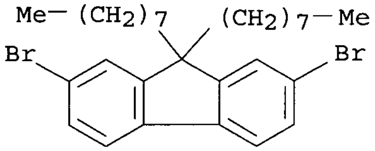
CM 2

CRN 444795-95-3
CMF C38 H30 Br2 N2



CM 3

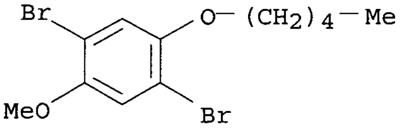
CRN 198964-46-4
CMF C29 H40 Br2



RN 444796-27-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromo-3-methylphenyl)-N,N'-diphenyl-, polymer with 1,4-dibromo-2-methoxy-5-(pentyloxy)benzene (9CI) (CA INDEX NAME)

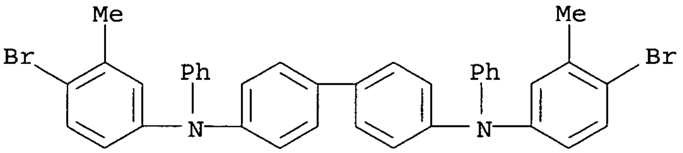
CM 1

CRN 444796-26-3
CMF C12 H16 Br2 O2



CM 2

CRN 444795-95-3
CMF C38 H30 Br2 N2



L33 ANSWER 8 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:564983 HCAPLUS
DOCUMENT NUMBER: 135:122301

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TITLE:                      Synthesis of N4,N4'-diphenyl-N4,N4'-di-m-tolyl-
                            biphenyl-4,4'-diamine by the nickel
                            -catalyzed coupling of (4-chlorophenyl)phenyl-m-
                            tolylamine
INVENTOR(S):                Sullivan, Jeffrey M.; Russo-Rodriguez, Sandra
PATENT ASSIGNEE(S):         Boulder Scientific Company, USA
SOURCE:                     PCT Int. Appl., 19 pp.
                            CODEN: PIXXD2
DOCUMENT TYPE:              Patent
LANGUAGE:                   English
FAMILY ACC. NUM. COUNT:     1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.         DATE
     ---------------     ----   --------    --------------------    --------
     WO 2001055087        A1    20010802    WO 2001-US1702          20010118 <--
         W:  AU, CA, JP, NZ, US
         RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE, TR
     US 6407289           B1    20020618    US 2000-492327          20000127 <--
     CA 2368794           AA    20010802    CA 2001-2368794         20010118 <--
     EP 1173405           A1    20020123    EP 2001-906590          20010118 <--
     EP 1173405           B1    20040915
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI
     JP 2003520840        T2    20030708    JP 2001-555030          20010118 <--
     AT 276228            E     20041015    AT 2001-906590          20010118
PRIORITY APPLN. INFO.:                      US 2000-492327       A1 20000127
                                            WO 2001-US1702       W  20010118
OTHER SOURCE(S):            CASREACT 135:122301; MARPAT 135:122301
GI
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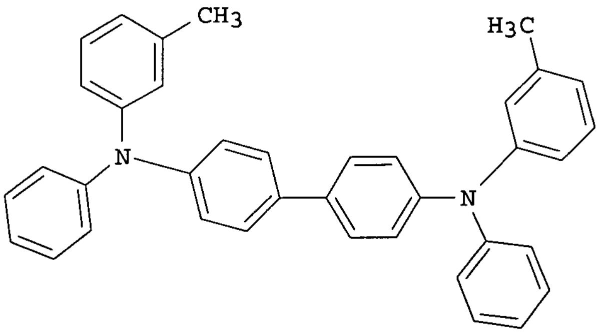


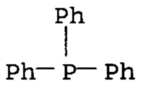
I

AB N4,N4'-diphenyl-N4,N4'-di-m-tolylbiphenyl-4,4'-diamine (I) is prepared in 80% yield by the Ni-catalyzed coupling of (4-chlorophenyl)phenyl-m-tolylamine in the presence of Zn powder, PPh3, 2,2'-bipyridyl, NiCl2, and DMF.

IT **603-35-0**, **Triphenylphosphine**, uses **3375-31-3**
**7718-54-9**, **Nickel** dichloride, uses **13716-12-6**,
Tri-tert-**butylphosphine**
RL: CAT (Catalyst use); USES (Uses)
(in the synthesis of N4,N4'-diphenyl-N4,N4'-di-m-tolyl-biphenyl-4,4'-diamine by the **nickel**-catalyzed coupling of (4-chlorophenyl)phenyl-m-tolylamine)

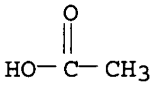
RN 603-35-0 HCAPLUS

CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



$\mathrm{Ph}-\overset{\overset{\mathrm{Ph}}{|}}{\mathrm{P}}-\mathrm{Ph}$

RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



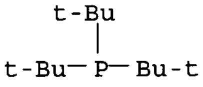
$\mathrm{HO}-\overset{\overset{\mathrm{O}}{\|}}{\mathrm{C}}-\mathrm{CH_3}$

●1/2 Pd(II)

RN 7718-54-9 HCAPLUS
CN Nickel chloride (NiCl2) (8CI, 9CI) (CA INDEX NAME)

$\mathrm{Cl}-\mathrm{Ni}-\mathrm{Cl}$

RN 13716-12-6 HCAPLUS
CN Phosphine, tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

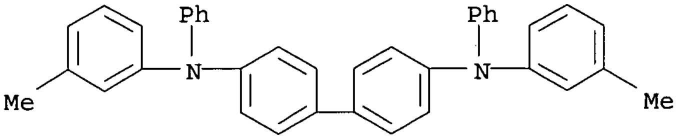


$t\text{-Bu}-\overset{\overset{t\text{-Bu}}{|}}{\mathrm{P}}-\text{Bu-}t$

IT **7440-66-6**, **Zinc**, uses
RL: CAT (Catalyst use); USES (Uses)
(powdered; in the synthesis of N4,N4'-diphenyl-N4,N4'-di-m-tolyl-biphenyl-4,4'-diamine by the **nickel**-catalyzed coupling of (4-chlorophenyl)phenyl-m-tolylamine)
RN 7440-66-6 HCAPLUS
CN Zinc (7CI, 8CI, 9CI) (CA INDEX NAME)

Zn

IT **65181-78-4P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(synthesis of N4,N4'-diphenyl-N4,N4'-di-m-tolyl-biphenyl-4,4'-diamine by the **nickel**-catalyzed coupling of (4-chlorophenyl)phenyl-m-tolylamine)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

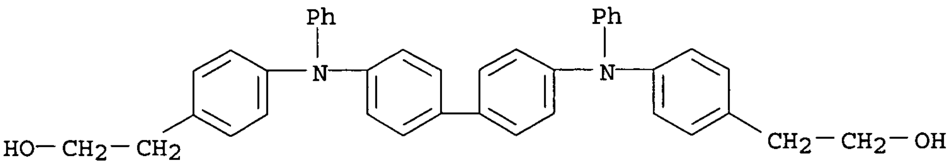
L33 ANSWER 9 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:541855 HCAPLUS
DOCUMENT NUMBER: 135:129536
TITLE: Intermediate transfer electrophotographic image-forming devices and their image-forming process
INVENTOR(S): Asano, Masao; Itami, Akihiko; Yamazaki, Hiroshi; Yamada, Hiroyuki
PATENT ASSIGNEE(S): Konica Co., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 43 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| JP 2001201879 | A2 | 20010727 | JP 2000-12886 | | 20000121 | <-- |
| US 2001019674 | A1 | 20010906 | US 2001-765029 | | 20010118 | <-- |
| US 2003147670 | A1 | 20030807 | US 2002-247838 | | 20020919 | <-- |
| PRIORITY APPLN. INFO.: | | | JP 2000-12886 | A | 20000121 | |
| | | | JP 2000-14429 | A | 20000124 | |
| | | | US 2001-765029 | A3 | 20010118 | |

AB The device is assembled with a development means disposed around a photoreceptor, toner images on the photoreceptor being transfered with the development means to an intermediate transfer body then to a transfer material, the residual toners on the photoreceptor being removed with a cleaner, wherein the device is characterized by that (i) saturated water content of the toner for the development at 30° and RH 80% is 0.1-2.0 mass%, and (ii) the surface layer of the photoreceptor contains a siloxane-based resin. The toner may be a color toner. Preferably, the siloxane-based resin has a crosslinked structure units which may be shown as SiYX (X = charge-transporting structure; Y = linkage with valency ≥2). The surface layer may contain an antioxidant and (in)organic particles. With the device, out of color registration is minimized.

IT **152048-31-2DP**, reaction products with Me Ph polysiloxanes and alkyltrialkoxysilanes **292041-42-0DP**, KP 854, reaction products with alkyltrialkoxysilanes and charge-transporting compds.
RL: DEV (Device component use); PNU (Preparation, unclassified); **PREP (Preparation)**; USES (Uses)
(crosslinked; intermediate transfer electrophotog. image-forming devices with siloxane-coated photoreceptors and water content-controlled toners)

RN 152048-31-2 HCAPLUS
CN Benzeneethanol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis- (9CI) (CA INDEX NAME)



RN 292041-42-0 HCAPLUS

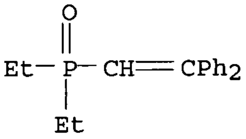
IT **263242-39-3P**

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(reactants for preparation of charge-transporting compds.; intermediate transfer electrophotog. image-forming devices with siloxane-coated photoreceptors and water content-controlled toners)

RN 263242-39-3 HCAPLUS

CN Phosphine oxide, (2,2-diphenylethenyl)diethyl- (9CI) (CA INDEX NAME)



$Et-P(=O)(Et)-CH=CPh_2$

L33 ANSWER 10 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:541854 HCAPLUS

DOCUMENT NUMBER: 135:129535

TITLE: Contact electrification-type electrophotographic image-formation device and image-formation process thereof

INVENTOR(S): Asano, Masao; Itami, Akihiko; Yamazaki, Hiroshi; Yamada, Hiroyuki

PATENT ASSIGNEE(S): Konica Co., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 42 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

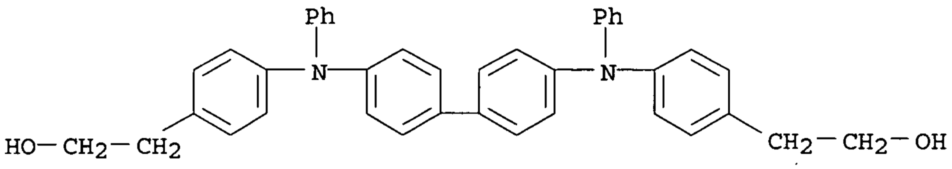
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

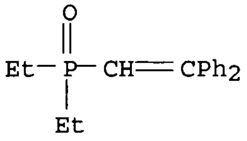
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 2001201878 | A2 | 20010727 | JP 2000-11732 | 20000120 <-- |
| PRIORITY APPLN. INFO.: | | | JP 2000-11732 | 20000120 |

AB The device possesses a photoreceptor and means for charging, exposure, development, transfer, and cleaning, toner images on the photoreceptor to be transfered to the transfer means, wherein the device is characterized by that (i) the charging means is a roller made of an elec. conductive elastic member disposed in contacting relation with the photoreceptor surface, (ii) saturated water content of the toner at 30° and RH 80% 0.1-2.0 mass%, and (iii) the surface layer of the photoreceptor contains a siloxane-based resin. Preferably, the siloxane-based resin has a crosslinked region and charge-transporting structure units which may be shown as SiYX (X = charge-transporting structure; Y = linkage with valency ≥2). The surface layer may contain an antioxidant and (in)organic particles.

IT **152048-31-2DP**, reaction products with Me Ph polysiloxanes and alkyltrialkoxysilanes **292041-42-0DP**, KP 854, reaction products with alkyltrialkoxysilanes and charge-transporting compds.
RL: DEV (Device component use); PNU (Preparation, unclassified); **PREP (Preparation)**; USES (Uses)
(crosslinked; contact electrification-type electrophotog. apparatus with siloxane-coated photoreceptors and water content-controlled toners)
RN 152048-31-2 HCAPLUS
CN Benzeneethanol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis- (9CI) (CA INDEX NAME)



RN 292041-42-0 HCAPLUS
IT **263242-39-3P**
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(reactants for preparation of charge-transporting compds.; contact electrification-type electrophotog. apparatus with siloxane-coated photoreceptors and water content-controlled toners)
RN 263242-39-3 HCAPLUS
CN Phosphine oxide, (2,2-diphenylethenyl)diethyl- (9CI) (CA INDEX NAME)



L33 ANSWER 11 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:210267 HCAPLUS
DOCUMENT NUMBER: 134:245059
TITLE: Organic electroluminescent device
INVENTOR(S): Ueda, Masato; Morikawa, Michitaka
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 2001076880 | A2 | 20010323 | JP 1999-245625 | 19990831 <-- |

PRIORITY APPLN. INFO.: JP 1999-245625 19990831

AB The invention refers to an organic electroluminescent device, suitable for use in flat panel displays, wherein the buffer layer contains an organic material such that when heated under He atmospheric from 100 °C to 150 °C, loses 5% or less of its mass, and Lb/Lh = 0.5 - 1.5 where Lb =

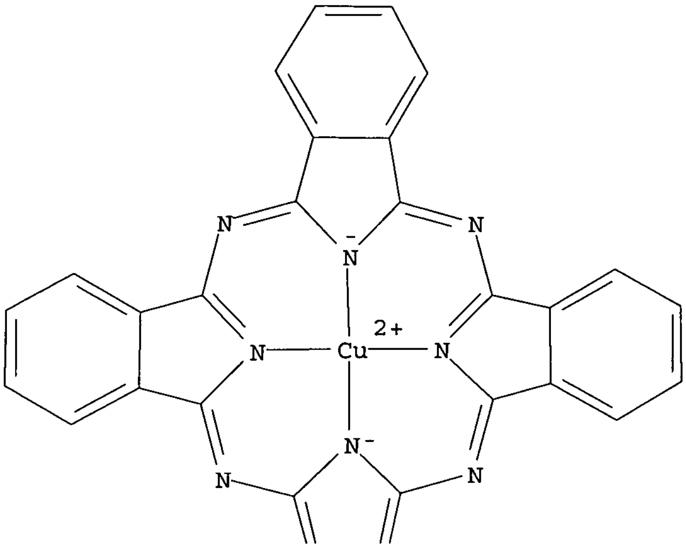
thickness of the buffer layer, Lh = thickness of the hole transport layer,
in order to produce a device that is stable at high temps.

IT **147-14-8**, **Copper** phthalocyanine
RL: DEV (Device component use); USES (Uses)
(organic electroluminescent device)

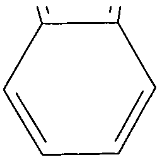
RN 147-14-8 HCAPLUS

CN Copper, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.ka
ppa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

PAGE 1-A



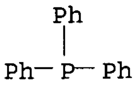
PAGE 2-A



IT **603-35-0**, Triphenyl **phosphine**, reactions
**330649-93-9** **330649-95-1** **330649-96-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic electroluminescent device)

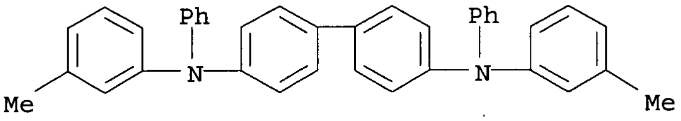
RN 603-35-0 HCAPLUS

CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



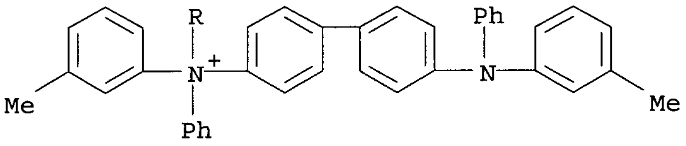
$\mathrm{Ph{-}P(Ph){-}Ph}$

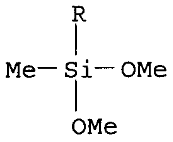
RN 330649-93-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-, dihydrobromide (9CI) (CA INDEX NAME)



● 2 HBr

RN 330649-95-1 HCAPLUS
CN Silanaminium, 1,1-dimethoxy-1-methyl-N-(3-methylphenyl)-N-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N-phenyl-, chloride (9CI) (CA INDEX NAME)



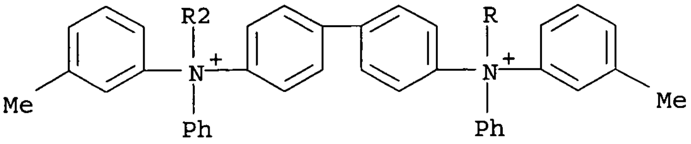


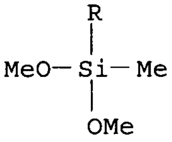
$\mathrm{Me{-}Si(R)(OMe){-}OMe}$

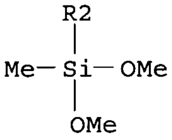
● $\mathrm{Cl}^-$

RN 330649-96-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diaminium, N,N'-bis(dimethoxymethylsilyl)-N,N'-bis(3-methylphenyl)-N,N'-diphenyl-, dichloride (9CI) (CA INDEX NAME)

PAGE 1-A



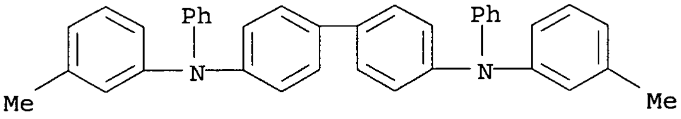




PAGE 2-A

●2 $Cl^-$

IT **330649-94-0P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP**
**(Preparation)**; RACT (Reactant or reagent)
(organic electroluminescent device)
RN 330649-94-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-,
radical ion(2-), dilithium (9CI) (CA INDEX NAME)



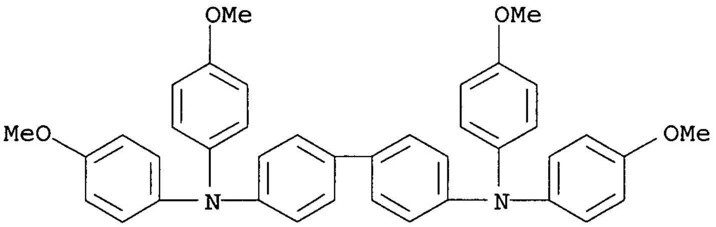
●2 $Li^+$

L33 ANSWER 12 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:567038 HCAPLUS
DOCUMENT NUMBER: 131:249441
TITLE: The Class II/III Transition in Triarylamine Redox Systems
AUTHOR(S): Lambert, Christoph; Noell, Gilbert
CORPORATE SOURCE: Institut fuer Organische Chemie, Universitaet
Regensburg, Regensburg, D-93040, Germany

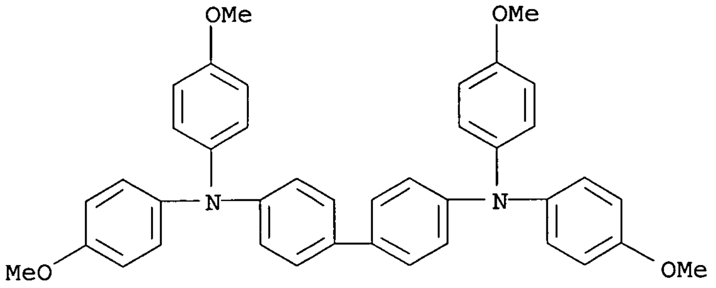
SOURCE: Journal of the American Chemical Society (**1999**), 121(37), 8434-8442
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The mixed-valence character of a set of six bistriarylamine derivs. with varying π-electron spacers was studied. The distances of triarylamine redox centers vary from 0.5 nm (N,N,N',N'-tetra-4-methoxyphenyl-p-phenylenediamine cation radical) to 2 nm (1,4-bis{4-[N,N-di(4-methoxyphenyl)amino]phenylethynyl}**benzene** cation radical). All radical cation species show rather strong intervalence charge-transfer (IV-CT) bands in the NIR as measured by UV/visible/NIR spectroelectrochem. Hush anal. was used to derive the electronic coupling V, which is very high and ranges from 500 to 3240 cm-1. A detailed band shape anal. revealed a cutoff at 2V at the low-energy side of the IV-CT bands when the coupling 2V approaches the band maximum λ. This results in very narrow IV-CT bands much smaller than the high-temperature limit, although even the phenylenediamine derivative cation radical belongs to the Robin/Day class II (localized redox centers) just at the border to class III (delocalized redox centers). Hush theory anticipates this cutoff because the smallest energy transition possible is at 2V. The ultrafast thermal electron-transfer rate consts. were estimated from V and range from .apprx.109 s-1 to 1012 s-1. The electrochem. properties also were studied: a linear correlation of redox potential splitting vs. electronic coupling was found.

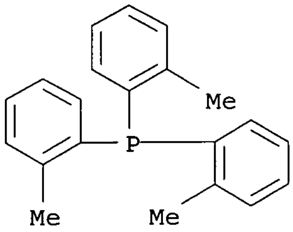
IT **244260-36-4**
RL: FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(electrochem. oxidative formation and intervalence charge-transfer bands)
RN 244260-36-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(4-methoxyphenyl)-, radical ion(1+) (9CI) (CA INDEX NAME)



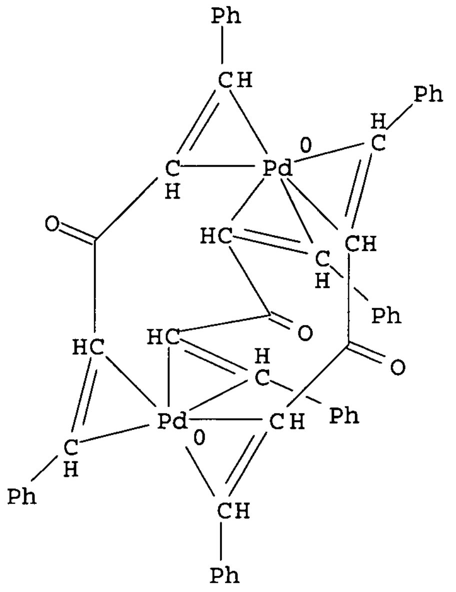
IT **122738-21-0P**
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and electrochem. oxidation in CH2Cl2 and DMSO)
RN 122738-21-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



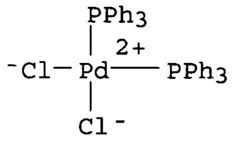
IT **6163-58-2**, Tri-o-**tolylphosphine**
RL: NUU (Other use, unclassified); USES (Uses)
(reaction of dibromobenzene with di(methoxyphenyl)amine in presence of **tritolylphosphine** and **palladium** complex)
RN 6163-58-2 HCAPLUS
CN Phosphine, tris(2-methylphenyl)- (9CI) (CA INDEX NAME)



IT **51364-51-3**
RL: CAT (Catalyst use); USES (Uses)
(reaction of dibromonaphthalene with di(methoxyphenyl)amine in presence of **palladium** complex in bis[di(methoxyphenyl)amino]naphthalene preparation)
RN 51364-51-3 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di- (9CI) (CA INDEX NAME)



IT **13965-03-2**
RL: CAT (Catalyst use); USES (Uses)
(reaction with diiodobenzene with [di(methoxyphenyl)amino]phenylacetylene in presence of **palladium** chloro **triphenylphosphine** complex and CuI in bis[[di(methoxyphenyl)amino]phenylethynyl] **benzene** preparation)
RN 13965-03-2 HCAPLUS
CN Palladium, dichlorobis(triphenylphosphine)- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7681-65-4**, **Copper** iodide (CuI)
RL: NUU (Other use, unclassified); USES (Uses)
(reaction with diiodobenzene with [di(methoxyphenyl)amino]phenylacetylene in presence of **palladium** chloro **triphenylphosphine** complex and CuI in bis[[di(methoxyphenyl)amino]phenylethynyl] **benzene** preparation)
RN 7681-65-4 HCAPLUS
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu— I

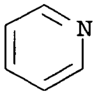
REFERENCE COUNT: 94 THERE ARE 94 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 13 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:405851 HCAPLUS

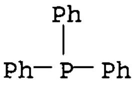
DOCUMENT NUMBER: 131:213925
TITLE: Persistent perfluoroalkyl radical investigations under reductive environment reaction with electron-donating reagents
AUTHOR(S): Ono, Taizo; Fukaya, Haruhiko; Hayashi, Eiji; Saida, Hiroko; Abe, Takashi; Henderson, Philip B.; Fernandez, Richard E.; Scherer, Kirby V.
CORPORATE SOURCE: Chemistry Department, Fluorine Chemistry Laboratory, National Industrial Research Institute of Nagoya, Nagoya, 462-8510, Japan
SOURCE: Journal of Fluorine Chemistry (**1999**), 97(1-2), 173-182
CODEN: JFLCAR; ISSN: 0022-1139
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The reactivity of persistent perfluoroalkyl radical, perfluoro-3-ethyl-2,4-dimethyl-3-pentyl (1), with various electron-donating reagents was investigated. It is revealed that 1 which is robust under oxidative conditions is rather vulnerable under reductive conditions. Thus, Lewis bases such as triethylamine and triphenylpnictogens (Ph3Pn, Pn=N, P, As, Sb, Bi) and some soft anions such as iodide or tetraphenylborate reacted with 1 to give perfluoro-3-isopropyl-4-methylpent-2-ene (2) quant. Even very weak Lewis bases such as di-Et **ether** and di-Et sulfide also reacted with 1 to give 2 and addnl. a hydrido product, perfluoro-3-ethyl-3-H-2,4-dimethylpentane (4). Hydrogen gas did not react with 1 at all without a catalyst, but in the presence of **metal** Pd adsorbed on charcoal, smoothly reacted to give 2 in quant. yield. **Metal** hydrides such as LiAlH4, NaBH4, NaH, BH3 (THF complex), Bu3SnH, Me2PhSiH reacted with 1 to give 2 and 4. That an electron transfer mechanism is operating in the formation of 2 is obvious, but not conclusive in the formation of 4.

IT **110-86-1**, **Pyridine**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(failed reaction; reactivity of persistent perfluoroalkyl radical perfluoro-3-ethyl-2,4-dimethyl-3-pentyl with strong and weak Lewis bases, hydrogen, and **metal** hydrides)
RN 110-86-1 HCAPLUS
CN Pyridine (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

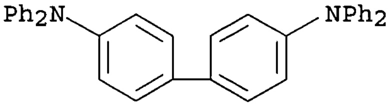


IT **603-35-0**, **Triphenylphosphine**, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(reactivity of persistent perfluoroalkyl radical perfluoro-3-ethyl-2,4-dimethyl-3-pentyl with strong and weak Lewis bases, hydrogen, and **metal** hydrides)
RN 603-35-0 HCAPLUS
CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

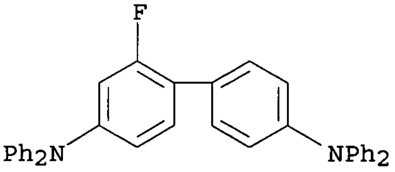


$\mathrm{Ph-P(Ph)-Ph}$

IT **15546-43-7P**, N,N,N',N'-Tetraphenylbenzidine **243459-98-5P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(reactivity of persistent perfluoroalkyl radical perfluoro-3-ethyl-2,4-dimethyl-3-pentyl with strong and weak Lewis bases, hydrogen, and **metal** hydrides)
RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 243459-98-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, 2-fluoro-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



IT **7440-05-3**, **Palladium**, uses
RL: CAT (Catalyst use); USES (Uses)
(reduction catalyst; reactivity of persistent perfluoroalkyl radical perfluoro-3-ethyl-2,4-dimethyl-3-pentyl with strong and weak Lewis bases, hydrogen, and **metal** hydrides)
RN 7440-05-3 HCAPLUS
CN Palladium (8CI, 9CI) (CA INDEX NAME)

Pd

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 14 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:401572 HCAPLUS
DOCUMENT NUMBER: 131:65682
TITLE: Diaminonaphthalene derivatives and organic electroluminescent device using the same
INVENTOR(S): Uchida, Manabu; Koike, Toshihiro; Izumizawa, Takenori; Furukawa, Kenji
PATENT ASSIGNEE(S): Chisso Corp., Japan
SOURCE: Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW

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DOCUMENT TYPE:          Patent
LANGUAGE:               English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     EP 924192            A1    19990623    EP 1998-310309         19981216 <--
     EP 924192            B1    20020327
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO
     JP 11236360          A2    19990831    JP 1998-271046         19980925 <--
     US 6376106           B1    20020423    US 1998-212485         19981216 <--
PRIORITY APPLN. INFO.:                      JP 1997-363500      A  19971216
                                            JP 1998-271046      A  19980925
OTHER SOURCE(S):        MARPAT 131:65682
GI
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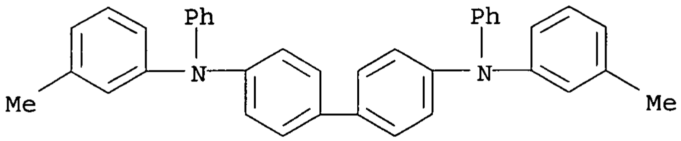
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB A diaminonaphthalene derivative of formula I: wherein R21-R30 = independently and individually represent a hydrogen atom, a halogen atom, a C1-6 alkyl, alkoxy, a substituted or unsubstituted amino group, a substituted or unsubstituted aryl group, or a substituted or unsubstituted heterocyclic group, the substituted or unsubstituted aryl group or the substituted or unsubstituted heterocyclic group may be condensed with the corresponding **benzene** ring at an arbitrary position of the **benzene** ring; and each of X and Y represents a hydrogen atom or a substituted or unsubstituted amino group, wherein at least one of the X or Y represents a substituted or unsubstituted amino group. The derivative is incorporated into an organic electroluminescent device (organic EL device), and serves as a hole-transportation layer, a luminescence layer, etc. The organic EL device containing the derivative exhibits high luminous efficacy and a prolonged service life.

IT **65181-78-4**, N,N'-Diphenyl-N,N'-di(3-methylphenyl)-4,4'-diaminobiphenyl
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diaminonaphthalene derivs. and organic electroluminescent devices using them)

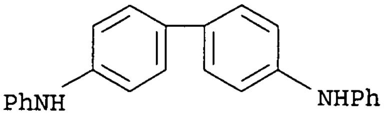
RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

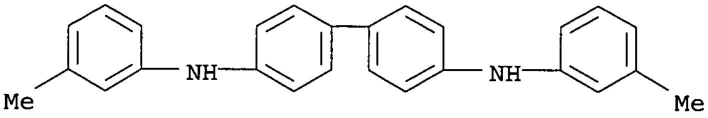


IT **531-91-9**, Diphenylbenzidine **78888-06-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(diaminonaphthalene derivs. and organic electroluminescent devices using them)

RN 531-91-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 78888-06-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



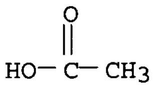
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 15 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:758635 HCAPLUS
DOCUMENT NUMBER: 130:52227
TITLE: One-pot preparation of tertiary arylamines from primary amines
INVENTOR(S): Yamamoto, Toshihide; Nishiyama, Shoichi; Koie, Yasuyuki
PATENT ASSIGNEE(S): Tosoh Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 10310561 | A2 | 19981124 | JP 1997-119477 | 19970509 <-- |

PRIORITY APPLN. INFO.: JP 1997-119477 19970509
OTHER SOURCE(S): CASREACT 130:52227; MARPAT 130:52227
AB Tertiary arylamines are prepared by reaction of R(NH2)n [R = alkyl(ene), (substituted) aryl(ene); n = 1-2] with Ar1X1m1 and Ar2X2m2 [Ar1, Ar2 = (substituted) aryl residue; Ar1 ≠ Ar2; X1, X2 = F, Cl, Br, I; m1, m2 = 1-3] in the presence of bases and catalysts comprising trialkylphosphines and Pd compds. Tris(dibenzylideneacetone)dipalladium and t-Bu3P were heated in o-xylene at 80° for 10 min to give a catalyst. 1-Naphthyl bromide and p-fluoroaniline were heated in o-xylene in the presence of the catalyst and t-BuONa at 120° for 3 h, mixed with p-bromoanisole, and further heated at 120° for 12 h to give 92.4% N-(1-naphthyl)-N-(4-methoxyphenyl)-4-fluoroaniline.
IT **3375-31-3 13716-12-6**, Tri-tert-**butylphosphine**
**51364-51-3**, Tris(dibenzylideneacetone)dipalladium
RL: CAT (Catalyst use); USES (Uses)
(one-pot preparation of tertiary arylamines from primary amines using **phosphine**-Pd catalysts)
RN 3375-31-3 HCAPLUS

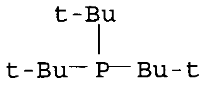
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



$$\mathrm{HO}-\overset{\mathrm{O}}{\overset{\|}{\mathrm{C}}}-\mathrm{CH_3}$$

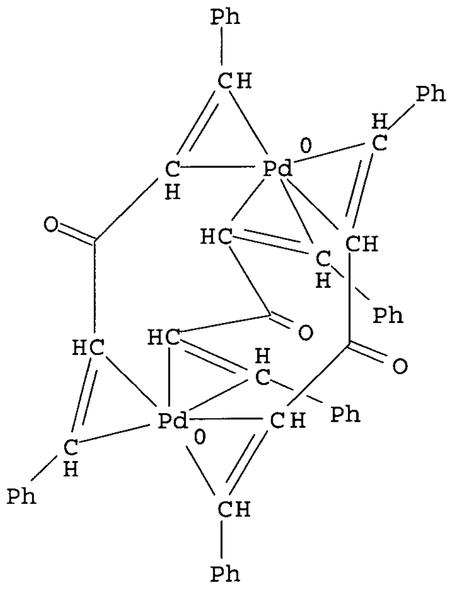
●1/2 Pd(II)

RN 13716-12-6 HCAPLUS
CN Phosphine, tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

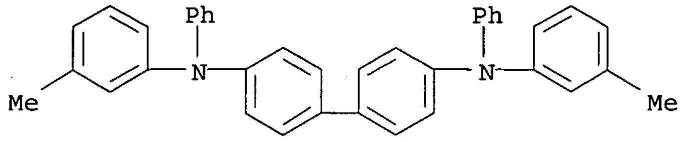


$$\text{t-Bu}-\overset{\text{t-Bu}}{\overset{|}{\mathrm{P}}}-\text{Bu-t}$$

RN 51364-51-3 HCAPLUS
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di- (9CI) (CA INDEX NAME)



IT **65181-78-4P**, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(one-pot preparation of tertiary arylamines from primary amines using **phosphine**-Pd catalysts)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



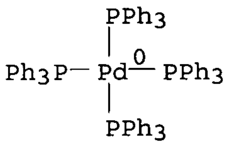
L33 ANSWER 16 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:459759 HCAPLUS
DOCUMENT NUMBER: 129:123010
TITLE: Process for preparing conjugated polymers
INVENTOR(S): Inbasekaran, Michael; Wu, Weishi; Woo, Edmund P.
PATENT ASSIGNEE(S): Dow Chemical Co., USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| US 5777070 | A | 19980707 | US 1997-956797 | | 19971023 | <-- |
| CA 2305137 | AA | 19990429 | CA 1998-2305137 | | 19980513 | <-- |
| WO 9920675 | A1 | 19990429 | WO 1998-US9706 | | 19980513 | <-- |
| W: CA, CN, JP, KR, SG | | | | | | |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | | | |
| EP 1025142 | A1 | 20000809 | EP 1998-923397 | | 19980513 | <-- |
| EP 1025142 | B1 | 20030226 | | | | |
| R: DE, FR, GB, IT, NL, SE, FI | | | | | | |
| JP 2001520289 | T2 | 20011030 | JP 2000-517007 | | 19980513 | <-- |
| AT 233288 | E | 20030315 | AT 1998-923397 | | 19980513 | <-- |
| TW 412544 | B | 20001121 | TW 1998-87108092 | | 19980525 | <-- |
| PRIORITY APPLN. INFO.: | | | US 1997-956797 | A | 19971023 | |
| | | | WO 1998-US9706 | W | 19980513 | |

AB A process for preparing conjugated polymers comprises contacting (i) monomers having two reactive groups selected from boronic acid, C1-6 boronic acid ester, C1-6 borane, and combinations thereof, with aromatic dihalide-functional monomers or (ii) monomers having one reactive boronic acid, boronic acid ester, or borane group and one reactive halide-functional group, with each other; (wherein the monomers are selected so that the polymerization reaction product of such has conjugated unsatd. internal groups) in a reaction mixture which contains: (a) an organic **solvent** in which the polymer forms at least a 1 percent solution; (b) an aqueous solution of an inorg. base having a pKa in the range of from 9 to 13, said solution having a concentration of at least 0.1N; (c) a catalytic amount of a **palladium** complex; and (d) at least 0.01 mol percent of a phase transfer catalyst, based on the number of moles of boronic acid, boric acid ester, and borane groups in the reaction mixture; under reaction conditions sufficient to form the corresponding conjugated polymer. A polymer was prepared from 2,7-dibromo-9,9-di-n-octylfluorene and 9,9-di-n-octylfluorene-2,7-di(ethyleneboronate) in a reaction mixture containing PhMe, aqueous sodium carbonate, Aliquat 336, and tetrakis(**triphenylphosphine**) **palladium.**

IT **14221-01-3**, Tetrakis(**triphenylphosphine**) **palladium**

```
     RL:  CAT (Catalyst use); USES (Uses)
             (process for preparing conjugated polymers)
RN   14221-01-3  HCAPLUS
CN   Palladium, tetrakis(triphenylphosphine)-, (T-4)- (9CI)  (CA INDEX NAME)
```

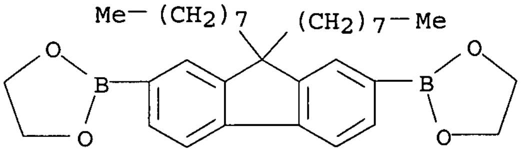


**IT   210347-57-2P 210347-58-3P**

```
     RL: IMF (Industrial manufacture); TEM (Technical or engineered material
     use); PREP (Preparation); USES (Uses)
        (process for preparing conjugated polymers)
RN   210347-57-2  HCAPLUS
CN   Benzoic acid, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis-,
     dimethyl ester, polymer with 2,2'-(9,9-dioctyl-9H-fluorene-2,7-
     diyl)bis[1,3,2-dioxaborolane] (9CI)  (CA INDEX NAME)

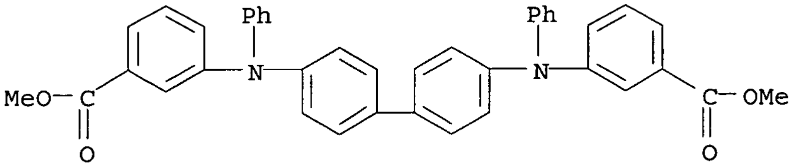
     CM   1

     CRN  210347-49-2
     CMF  C33 H48 B2 O4
```



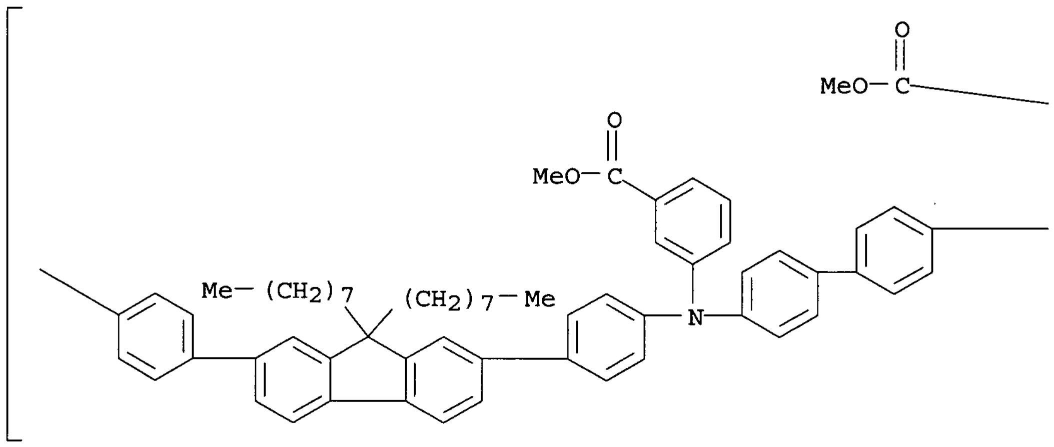
```
     CM   2

     CRN  146322-64-7
     CMF  C40 H32 N2 O4
```

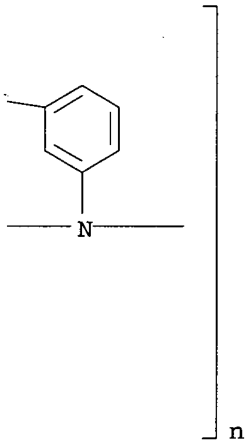


```
RN   210347-58-3  HCAPLUS
CN   Poly[[[3-(methoxycarbonyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl[[3-
     (methoxycarbonyl)phenyl]imino]-1,4-phenylene(9,9-dioctyl-9H-fluorene-2,7-
     diyl)-1,4-phenylene] (9CI)  (CA INDEX NAME)
```

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 17 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:250356 HCAPLUS
DOCUMENT NUMBER: 128:308255
TITLE: **Palladium**-catalyzed synthesis of triarylamines from aryl halides and diarylamines
AUTHOR(S): Yamamoto, Toshihide; Nishiyama, Masakazu; Koie, Yasuyuki
CORPORATE SOURCE: Yokkaichi Research Laboratory, Tosoh Corporation, Mie, 510, Japan
SOURCE: Tetrahedron Letters (**1998**), 39(16), 2367-2370
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 128:308255

AB Various triarylamines can be readily prepared in excellent yields by **palladium**-catalyzed cross-coupling reaction of aryl halides and diarylamines. The amination reaction takes place rapidly by using the catalyst combination of Pd(OAc)2 and a bulky and electron-rich **ligand**, P(t-Bu)3.

IT **603-35-0**, **Triphenylphosphine**, uses **998-40-3**, **Tributylphosphine 2622-14-2**, **Tricyclohexylphosphine 3375-31-3**, **Palladium** diacetate **6163-58-2**, Tris(o-tolyl)**phosphine** **13716-12-6**, Tri-tert-**butylphosphine 98327-87-8**, BINAP
RL: CAT (Catalyst use); USES (Uses)
(**palladium**-catalyzed preparation of triarylamines from aryl halides and diarylamines)

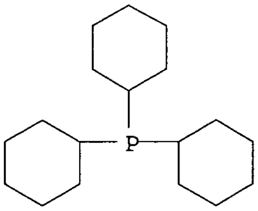
RN 603-35-0 HCAPLUS
CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

```
   Ph
   |
Ph—P—Ph
```

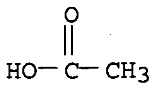
RN 998-40-3 HCAPLUS
CN Phosphine, tributyl- (8CI, 9CI) (CA INDEX NAME)

```
      n-Bu
       |
n-Bu—P—Bu-n
```

RN 2622-14-2 HCAPLUS
CN Phosphine, tricyclohexyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

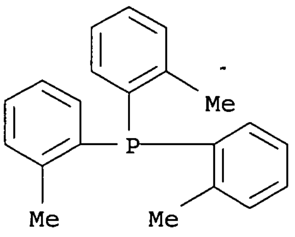


RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)

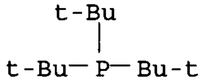

$HO-C(=O)-CH_3$

●1/2 Pd(II)

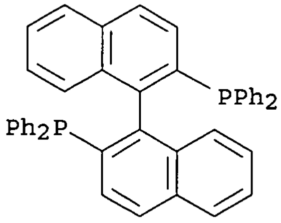
RN 6163-58-2 HCAPLUS
CN Phosphine, tris(2-methylphenyl)- (9CI) (CA INDEX NAME)



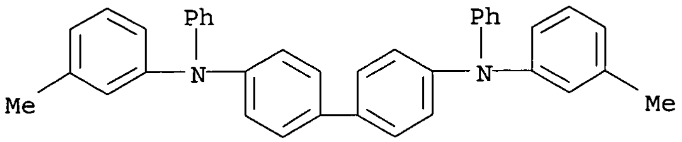
RN 13716-12-6 HCAPLUS
CN Phosphine, tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)


$P(\text{Bu-t})_3$

RN 98327-87-8 HCAPLUS
CN Phosphine, [1,1'-binaphthalene]-2,2'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



IT **65181-78-4P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 18 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:79445 HCAPLUS
DOCUMENT NUMBER: 128:198510
TITLE: Electroluminescent device and manufacture thereof
INVENTOR(S): Tanaka, Hiromitsu; Okata, Akane; Tokito, Seishi; Taga, Yasunori; Noda, Hiroshi
PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

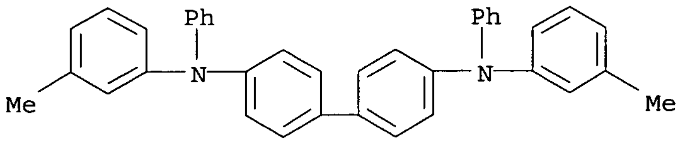
| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| JP 10025473 | A2 | 19980127 | JP 1997-79506 | | 19970331 <-- |

PRIORITY APPLN. INFO.: JP 1996-116296 A 19960510

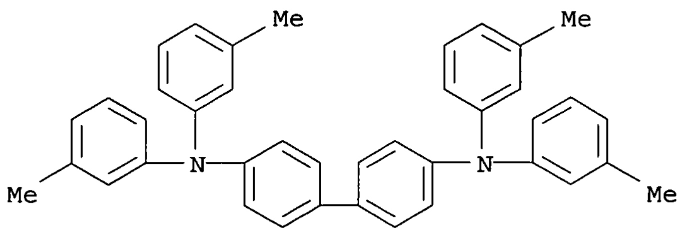
AB The invention relates to an organic electroluminescent device, especially relates to its hole transport material, thus the oligomer based on substituted triphenylamine with the d.p. ≤7, is vapor-deposited at a specific temperature range to produce a high purity and heat-resistant hole transport layer.

IT **65181-78-4 106614-54-4 182069-71-2**
**184104-78-7**
RL: DEV (Device component use); USES (Uses)
(electroluminescent device and manufacture thereof)

RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

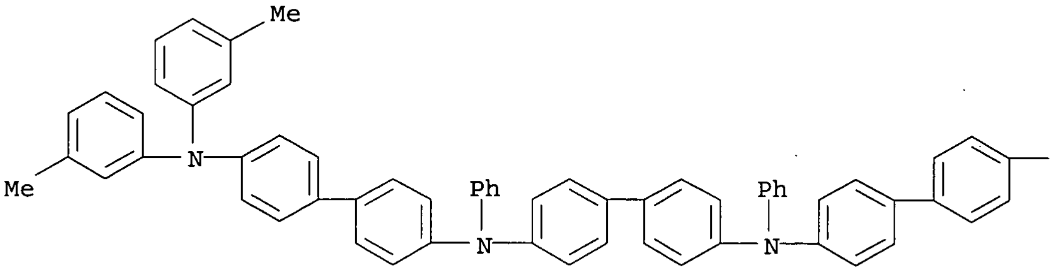


RN 106614-54-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(3-methylphenyl)- (9CI) (CA INDEX NAME)

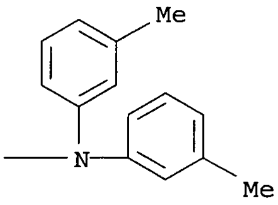


RN 182069-71-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4'-[bis(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)

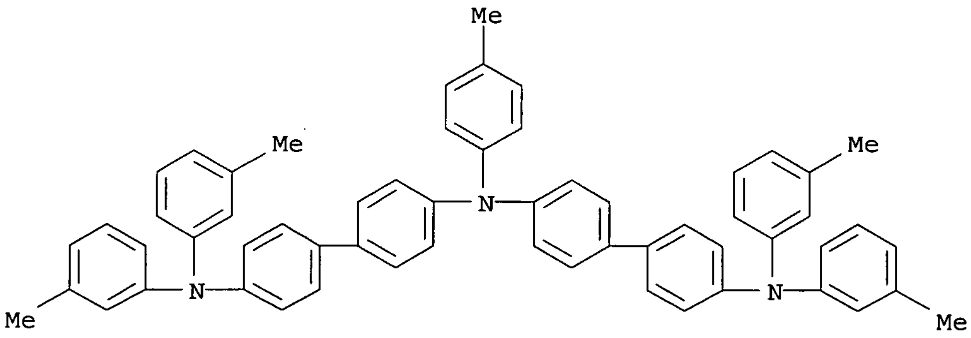
PAGE 1-A



PAGE 1-B



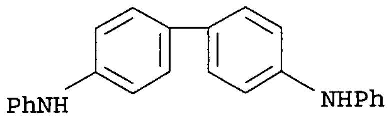
RN 184104-78-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-[4'-[bis(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]-N',N'-bis(3-methylphenyl)-N-(4-methylphenyl)- (9CI) (CA INDEX NAME)



IT **531-91-9**, N,N'-Diphenylbenzidine **626-13-1**,
Di(m-tolyl)amine
RL: RCT (Reactant); RACT (Reactant or reagent)
(electroluminescent device and manufacture thereof)

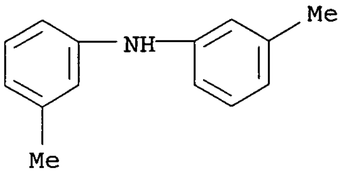
RN 531-91-9 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 626-13-1 HCAPLUS

CN Benzenamine, 3-methyl-N-(3-methylphenyl)- (9CI) (CA INDEX NAME)



L33 ANSWER 19 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN

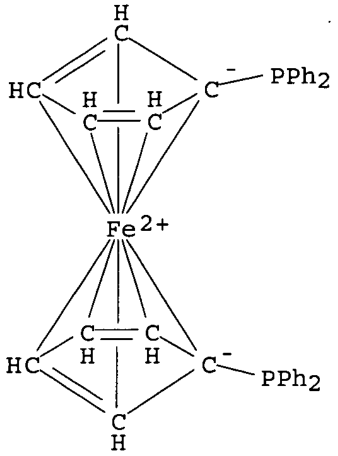
| | |
|---|---|
| ACCESSION NUMBER: | 1997:744512 HCAPLUS |
| DOCUMENT NUMBER: | 127:331232 |
| TITLE: | Synthesis of Unsymmetrical Triarylamines for Photonic Applications via One-Pot **Palladium**-Catalyzed Aminations |
| AUTHOR(S): | Thayumanavan, S.; Barlow, Stephen; Marder, Seth R. |
| CORPORATE SOURCE: | Beckman Institute, 139-74 California Institute of Technology, Pasadena, CA, 91125, USA |
| SOURCE: | Chemistry of Materials (**1997**), 9(12), 3231-3235<br>CODEN: CMATEX; ISSN: 0897-4756 |
| PUBLISHER: | American Chemical Society |
| DOCUMENT TYPE: | Journal |
| LANGUAGE: | English |
| OTHER SOURCE(S): | CASREACT 127:331232 |

AB Syntheses of unsym. substituted triarylamines have been achieved by a one-pot procedure using C-N bond-forming reactions, where two aryl bromides are sequentially added to an arylamine in the presence of a **palladium** catalyst. This methodol. has been utilized to synthesize a number of substituted analogs of 4,4'-bis(m-tolylphenylamino)biphenyl, which are useful as the hole transport component of vapor-deposited organic light-emitting diodes. The variations in the substitution are anticipated to lead to a variety of band gaps, band offsets, and glass transition temps. in this class of materials.

IT **12150-46-8**, DPPF **51364-51-3**,
Tris(dibenzylideneacetone)dipalladium
RL: CAT (Catalyst use); USES (Uses)
(preparation of unsym. triarylamines via one-pot **palladium**-catalyzed aminations)

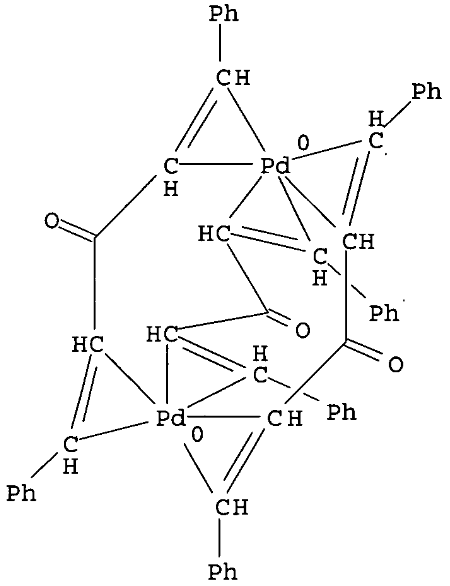
RN 12150-46-8 HCAPLUS

CN Ferrocene, 1,1'-bis(diphenylphosphino)- (9CI) (CA INDEX NAME)



RN 51364-51-3 HCAPLUS

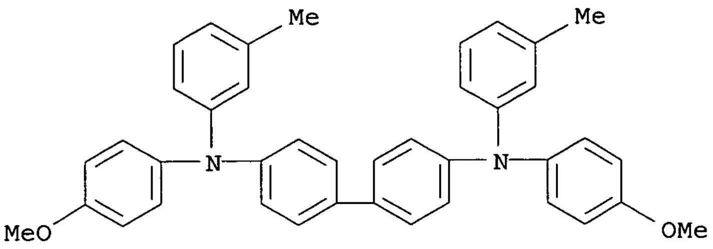
CN Palladium, tris[μ-[(1,2-η:4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di- (9CI) (CA INDEX NAME)



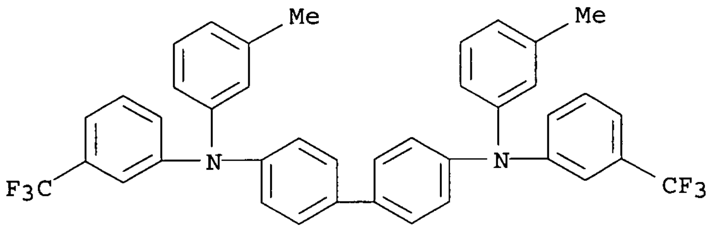
IT **122498-76-4P 142621-03-2P 197633-78-6P**
**197633-79-7P 197633-80-0P 197633-81-1P**
**197633-82-2P 197633-83-3P 197633-84-4P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of unsym. triarylamines via one-pot **palladium** -catalyzed aminations)

RN 122498-76-4 HCAPLUS

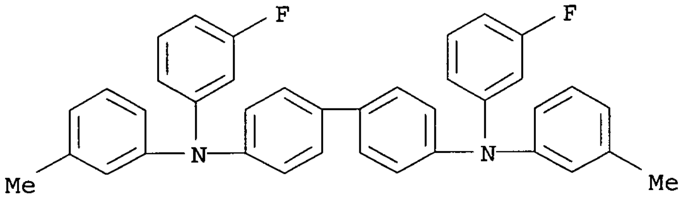
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-methoxyphenyl)-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



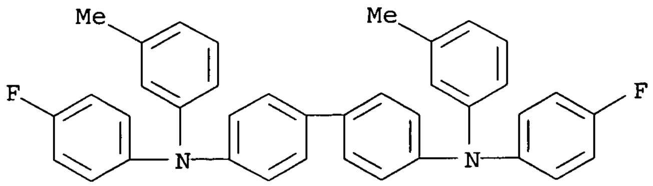
RN 142621-03-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-bis[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



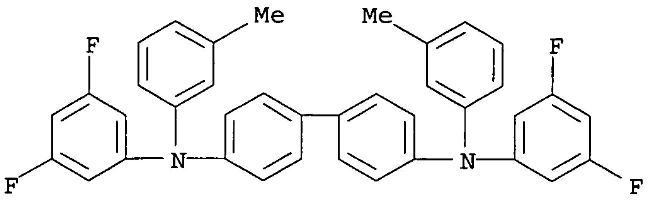
RN 197633-78-6 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-fluorophenyl)-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



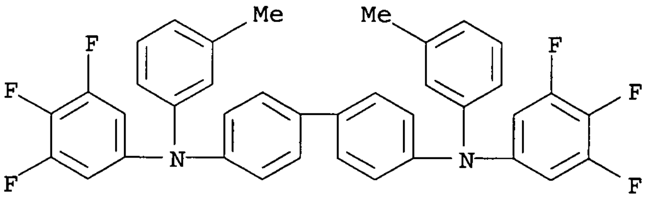
RN 197633-79-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-fluorophenyl)-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



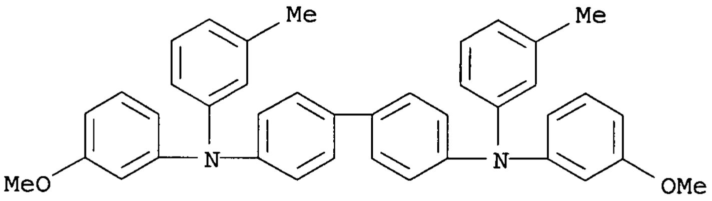
RN 197633-80-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,5-difluorophenyl)-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



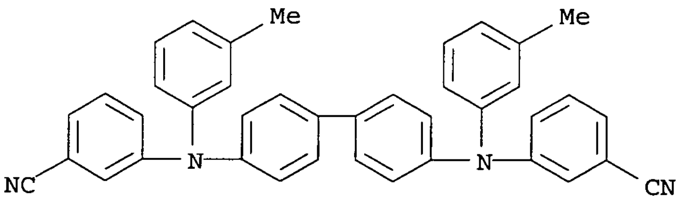
RN 197633-81-1 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-bis(3,4,5-trifluorophenyl)- (9CI) (CA INDEX NAME)



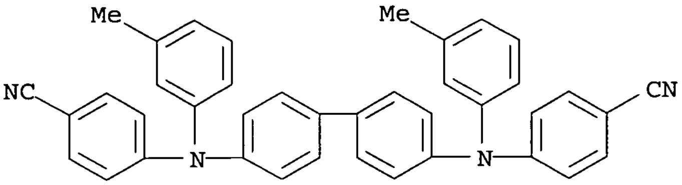
RN 197633-82-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methoxyphenyl)-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



RN 197633-83-3 HCAPLUS
CN Benzonitrile, 3,3'-[[1,1'-biphenyl]-4,4'-diylbis[(3-methylphenyl)imino]]bis- (9CI) (CA INDEX NAME)



RN 197633-84-4 HCAPLUS
CN Benzonitrile, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis[(3-methylphenyl)imino]]bis- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 20 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:527790 HCAPLUS
DOCUMENT NUMBER: 127:205337
TITLE: Preparation of triarylamines
INVENTOR(S): Goodbrand, H. Bruce
PATENT ASSIGNEE(S): Xerox Corp., USA
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| | US 5654482 | A | 19970805 | US 1996-608858 | 19960229 <-- |
| PRIORITY APPLN. INFO.: | | | | US 1996-608858 | 19960229 |

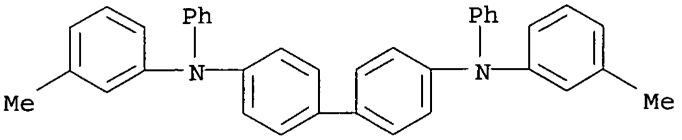
OTHER SOURCE(S): CASREACT 127:205337; MARPAT 127:205337

AB An Ullmann condensation process for the preparation of triarylamines comprises reaction of an aniline and a halobenzene in the presence of a an organic **solvent**, an alkali **metal** hydroxide, and a ligated **copper** catalyst wherein the **ligand** is selected from monodentate and bidentate tertiary amines and which reaction is accomplished at from .apprx.120° to .apprx. 135°.

IT **65181-78-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of triarylamines)

RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



L33 ANSWER 21 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:471336 HCAPLUS
DOCUMENT NUMBER: 127:161586
TITLE: Preparation of triarylamines by reaction of an aniline with a haloaromatic compound in the presence of a ligated **copper** catalyst.

INVENTOR(S): Goodbrand, H. Bruce; Chen, Liqin; Renfer, Dale S.
PATENT ASSIGNEE(S): Xerox Corp., USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

```
     PATENT NO.          KIND    DATE        APPLICATION NO.         DATE
     ---------------     ----    --------    --------------------    --------
     US 5648542           A      19970715    US 1996-609259          19960229 <--
     JP 09323958          A2     19971216    JP 1997-35967           19970220 <--
PRIORITY APPLN. INFO.:                       US 1996-609259       A  19960229
```

OTHER SOURCE(S): CASREACT 127:161586

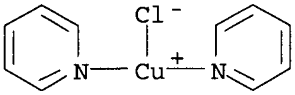
AB Triarylamines are prepared by reaction of an aniline and a haloarom. compound in the presence of a ligated **copper** catalyst at 120-150°; the **ligand** is selected from mono- and bidentate tertiary amines. Thus, a mixture of p-iodotoluene, p-bromoaniline, 1,10-phenanthroline, CuCl, KOH, and xylene was refluxed using a Dean-Stark trap to give 84.5% bis(p-methylphenyl)-p-bromophenylamine.

IT **7758-89-6**, Cuprous chloride **27110-55-0**
**76993-89-0 76993-90-3 98938-09-1**
RL: CAT (Catalyst use); USES (Uses)
(preparation of triarylamines by reaction of an aniline with a haloarom. compound in the presence of a ligated **copper** catalyst)

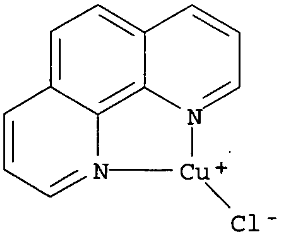
RN 7758-89-6 HCAPLUS
CN Copper chloride (CuCl) (8CI, 9CI) (CA INDEX NAME)

Cl— Cu

RN 27110-55-0 HCAPLUS
CN Copper, chlorobis(pyridine)- (8CI, 9CI) (CA INDEX NAME)

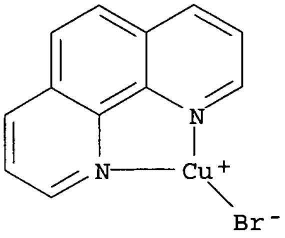


RN 76993-89-0 HCAPLUS
CN Copper, chloro(1,10-phenanthroline-κN1,κN10)- (9CI) (CA INDEX NAME)

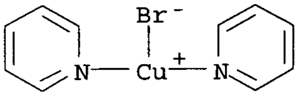


RN 76993-90-3 HCAPLUS
CN Copper, bromo(1,10-phenanthroline-κN1,κN10)- (9CI) (CA INDEX

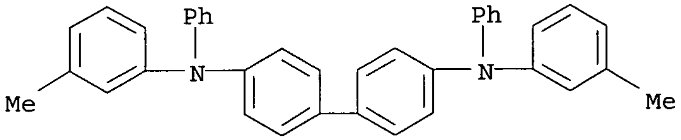
NAME)



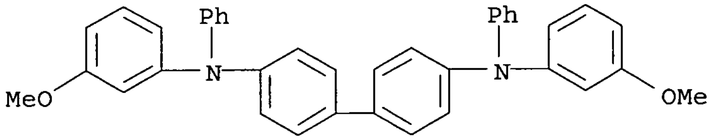
RN 98938-09-1 HCAPLUS
CN Copper, bromobis(pyridine)- (9CI) (CA INDEX NAME)



IT **65181-78-4P 105465-24-5P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of triarylamines by reaction of an aniline with a haloarom. compound in the presence of a ligated **copper** catalyst)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 105465-24-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methoxyphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



L33 ANSWER 22 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 1997:471335 HCAPLUS |
| DOCUMENT NUMBER: | 127:161585 |
| TITLE: | Preparation of arylamines by reaction of methyldiphenylamine with diiodobiphenyl in the presence of a ligated **copper** catalyst. |
| INVENTOR(S): | Goodbrand, H. Bruce |

PATENT ASSIGNEE(S): Xerox Corp., USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| US 5648539 | A | 19970715 | US 1996-607953 | | 19960229 | <-- |
| JP 09323959 | A2 | 19971216 | JP 1997-35968 | | 19970220 | <-- |
| PRIORITY APPLN. INFO.: | | | US 1996-607953 | A | 19960229 | |

OTHER SOURCE(S): CASREACT 127:161585

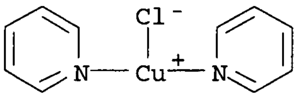
AB Arylamines are prepared by reaction of methyldiphenylamine and diiodobiphenyl in the presence of a ligated **copper** catalyst at 120-150°; the **ligand** is selected from mono- and bidentate tertiary amines. Thus, 4-MeC6H4NHPh, 4,4'-diiodobiphenyl, 1,10-phenanthroline, CuCl, KOH, and PhMe were heated at reflux for ca. 5 h to give 95% N,N'-diphenyl-N,N'-(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine.

IT **7758-89-6**, Cuprous chloride **27110-55-0**
**51961-77-4** **76993-89-0** **76993-90-3**
**98938-09-1** **193689-28-0** **193689-30-4**
**193689-32-6**
RL: CAT (Catalyst use); USES (Uses)
(preparation of arylamines by reaction of methyldiphenylamine with diiodobiphenyl in the presence of a ligated **copper** catalyst)

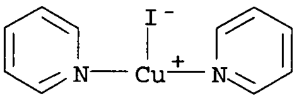
RN 7758-89-6 HCAPLUS
CN Copper chloride (CuCl) (8CI, 9CI) (CA INDEX NAME)

Cl—Cu

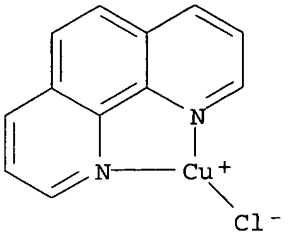
RN 27110-55-0 HCAPLUS
CN Copper, chlorobis(pyridine)- (8CI, 9CI) (CA INDEX NAME)



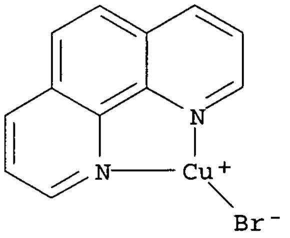
RN 51961-77-4 HCAPLUS
CN Copper, iodobis(pyridine)- (9CI) (CA INDEX NAME)



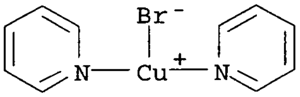
RN 76993-89-0 HCAPLUS
CN Copper, chloro(1,10-phenanthroline-κN1,κN10)- (9CI) (CA INDEX NAME)



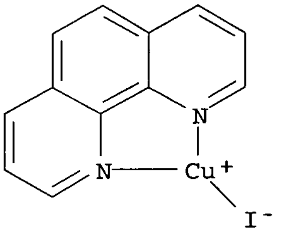
RN 76993-90-3 HCAPLUS
CN Copper, bromo(1,10-phenanthroline-κN1,κN10)- (9CI) (CA INDEX
NAME)



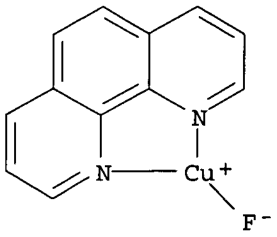
RN 98938-09-1 HCAPLUS
CN Copper, bromobis(pyridine)- (9CI) (CA INDEX NAME)



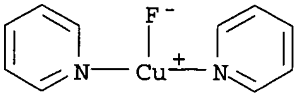
RN 193689-28-0 HCAPLUS
CN Copper, iodo(1,10-phenanthroline-κN1,κN10)- (9CI) (CA INDEX
NAME)



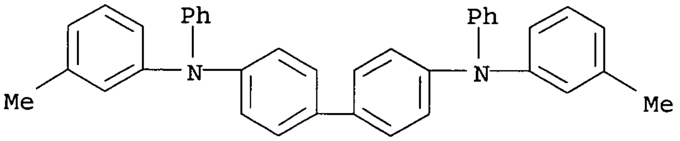
RN 193689-30-4 HCAPLUS
CN Copper, fluoro(1,10-phenanthroline-κN1,κN10)- (9CI) (CA INDEX
NAME)



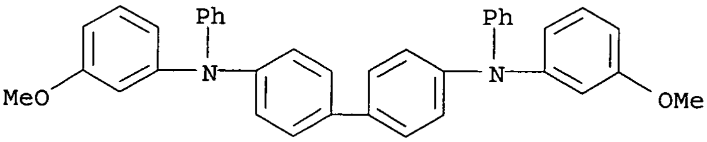
RN 193689-32-6 HCAPLUS
CN Copper, fluorobis(pyridine)- (9CI) (CA INDEX NAME)



IT **65181-78-4P 105465-24-5P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of arylamines by reaction of methyldiphenylamine with diiodobiphenyl in the presence of a ligated **copper** catalyst)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 105465-24-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methoxyphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



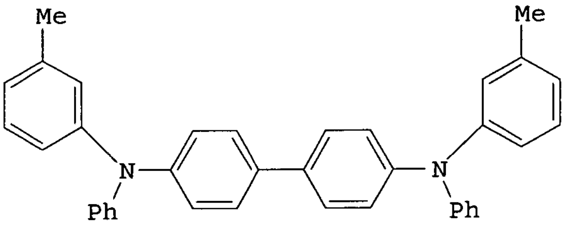
L33 ANSWER 23 OF 23 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 1989:231258 HCAPLUS |
| DOCUMENT NUMBER: | 110:231258 |
| TITLE: | Process for preparing arylamines |
| INVENTOR(S): | Turner, S. Richard; Yanus, John F.; Renfer, Dale S. |
| PATENT ASSIGNEE(S): | Xerox Corp., USA |
| SOURCE: | U.S., 10 pp. Cont.-in-part of U.S. Ser. No. 215,610, abandoned.<br>CODEN: USXXAM |

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| US 4764625 | A | 19880816 | US 1984-639032 | | 19840809 | <-- |
| CA 1171431 | A1 | 19840724 | CA 1981-369668 | | 19810129 | <-- |
| JP 56135448 | A2 | 19811022 | JP 1981-15557 | | 19810204 | <-- |
| JP 58052983 | B4 | 19831126 | | | | |
| JP 59046249 | A2 | 19840315 | JP 1983-129283 | | 19830715 | <-- |
| JP 01029182 | B4 | 19890608 | | | | |
| PRIORITY APPLN. INFO.: | | | US 1980-118147 | A2 | 19800204 | |
| | | | US 1980-215610 | A2 | 19801212 | |

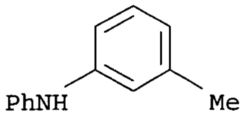
OTHER SOURCE(S): CASREACT 110:231258
GI



I

AB An improved process for preparing tertiary amines by condensation of secondary amines with mono- and diiodoarenes, comprises conducting the condensation in presence of KOH, a Cu catalyst, and an inert saturated C13-15 aliphatic hydrocarbon mixture having an initial b.p. of ≥170°, in an inert atmospheric at 120-190°, for a time sufficient to complete the reaction. The use of KOH and the inert hydrocarbon **solvent** yields a relatively pure product. A mixture of (4-IC6H4)2, 3-MeC6H4NPh2, KOH flake, Cu powder and Soltrol- 170 was maintained under an inert atmospheric and heated to 160° for 5 h to give 85% I. Using a different base, different catalyst, or a noninert **solvent**, resulted in lower yield and extended reaction time.

IT **1205-64-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation of, with diiodobiphenyl, copper catalyst for)
RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



IT **122-39-4**, Diphenylamine, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation reaction of, with iodobenzene, copper catalyst for)
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

```
Ph— NH— Ph

IT     65181-78-4P 80237-35-0P
       RL: SPN (Synthetic preparation); PREP (Preparation)
          (preparation of)
RN     65181-78-4  HCAPLUS
CN     [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-
       (9CI)  (CA INDEX NAME)
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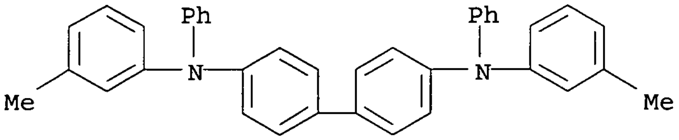

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RN     80237-35-0  HCAPLUS
CN     [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl-, polymer with
       1,4-diiodobenzene (9CI)  (CA INDEX NAME)

       CM   1

       CRN  624-38-4
       CMF  C6 H4 I2
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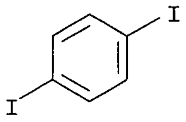

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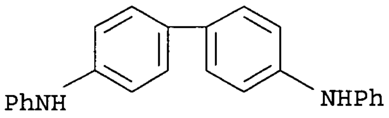

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=> d stat que l34
L1              STR
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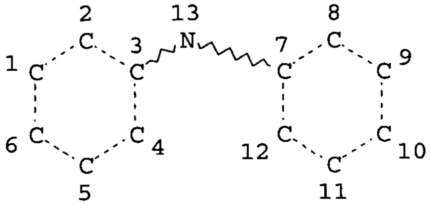

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DEFAULT ECLEVEL IS LIMITED

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RSPEC I
NUMBER OF NODES IS  13

STEREO ATTRIBUTES: NONE
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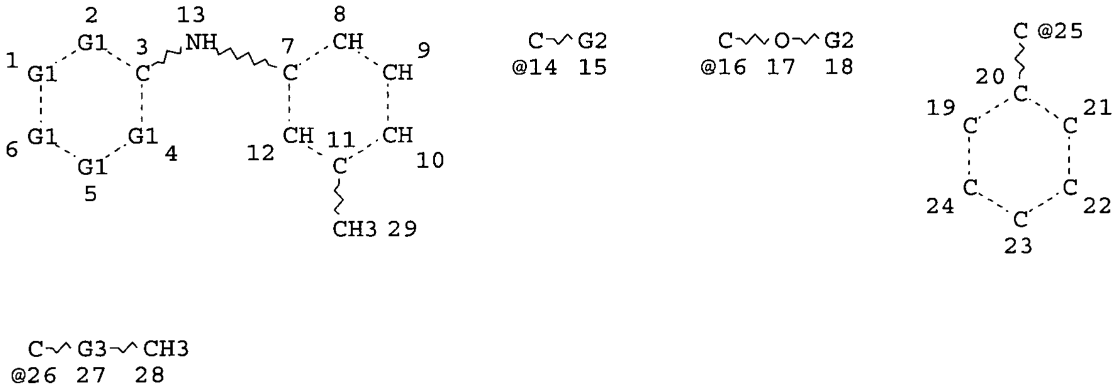

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DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS  29

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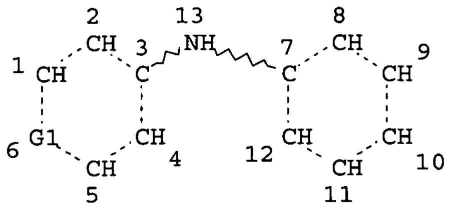

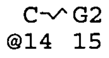

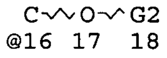

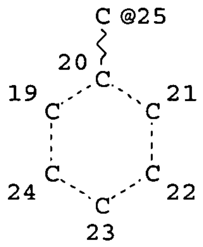

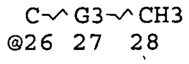

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS 28

STEREO ATTRIBUTES: NONE

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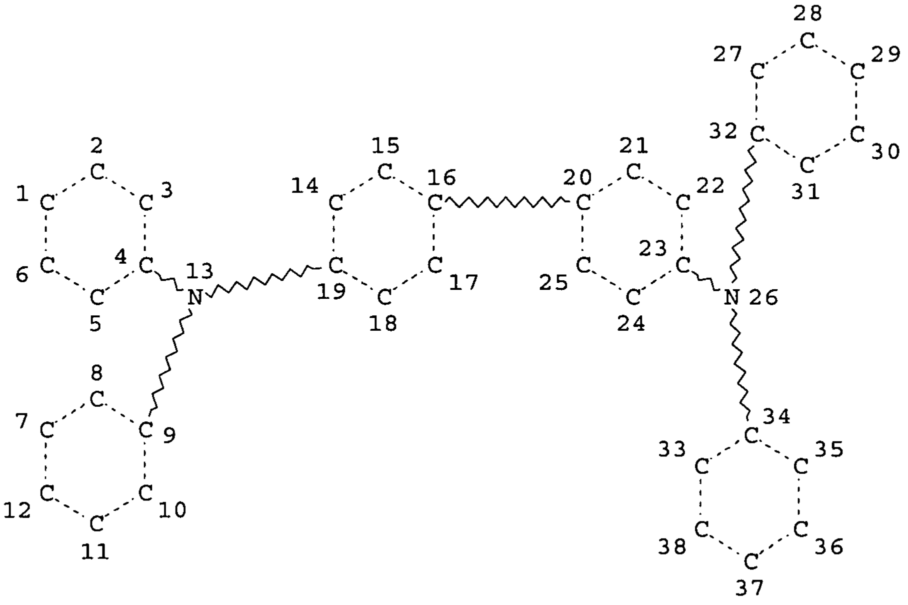

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

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RSPEC I
NUMBER OF NODES IS  38

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L12         4367 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9
L13           29 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L10 AND L11 AND L12
L14       271553 SEA FILE=REGISTRY ABB=ON  PLU=ON  METAL? OR PALLADIUM OR ZINC
L15       243338 SEA FILE=REGISTRY ABB=ON  PLU=ON  COPPER?/CN
L16       273644 SEA FILE=REGISTRY ABB=ON  PLU=ON  NICKEL?/CN
L19       176254 SEA FILE=REGISTRY ABB=ON  PLU=ON  PHENYL(L)PHOSPHINO?(L)(BINAPH
                THYL? OR NAPHTHYL) OR PHENYLPHOSPHINE OR PYRIDINE/CN
L20       129892 SEA FILE=REGISTRY ABB=ON  PLU=ON  PHOSPHINE NOT L19
L21         4432 SEA FILE=REGISTRY ABB=ON  PLU=ON  LIGAND?
L22      4847030 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 OR L15 OR L16 OR METAL?
                OR PALLADIUM OR ZINC OR COPPER OR NICKEL
L23       785006 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR L20 OR L21 OR PHENYL(2A
                )PHOSPHINO?(2A)?NAPHTHYL? OR ?PHOSPHINE OR PYRIDINE OR LIGAND
L24            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND L22 AND L23
L25            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 AND PD=<OCTOBER 8, 2003
L26          154 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND L22 AND L23
L27          555 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9(L)PREPARATION/RL
L28           45 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26 AND L27
L29           41 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 NOT L25
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L32           52 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L31 AND PD=<OCTOBER 8, 2003
L33           23 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L32 AND (SOLVENT OR BENZEN?
                OR ETHER OR ETHANOL OR CYANO?)
L34           28 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L31 AND PD=<JULY 15, 2003)
                NOT (L25 OR L33)


=> d ibib abs hitstr l34 1-28

L34  ANSWER 1 OF 28  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:         2003:472573  HCAPLUS
DOCUMENT NUMBER:          139:60162
TITLE:                    Organic electroluminescent material using calixarene
                          or calixresorciarene derivative
INVENTOR(S):              Momoda, Junji; Kawabata, Yuichiro; Otani, Toshiaki
PATENT ASSIGNEE(S):       Tokuyama Corporation, Japan
SOURCE:                   PCT Int. Appl., 140 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     WO 2003050201        A1    20030619    WO 2002-JP12821        20021206 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS,
             LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL,
             PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,
             UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
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KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

| | | | |
|---|---|---|---|
| PRIORITY APPLN. INFO.: | JP 2001-378448 | A | 20011212 |
| | JP 2002-120827 | A | 20020423 |
| | JP 2002-208112 | A | 20020717 |

OTHER SOURCE(S): MARPAT 139:60162

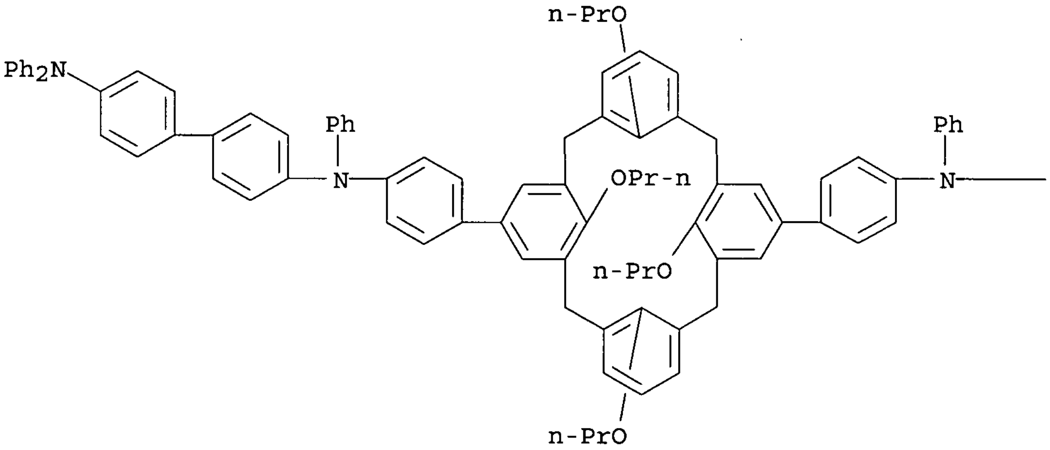
AB The invention refers to an organic electroluminescent materials suitable for spin coating, comprising. a calixarene or calixresorciarene derivative with an organic luminescent group and/or an organic charge transport group, such as 4-[1-(2,2-diphenylvinyl)- biphenyl-2-phenylvinyl]phenyl.

IT **546631-02-1P 546633-19-6P 546633-66-3P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(organic electroluminescent material using calixarene or calixresorciarene derivative)

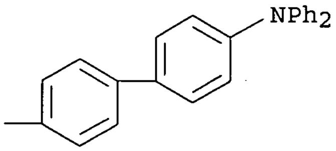
RN 546631-02-1 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-[(25,26,27,28-tetrapropoxypentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,17-diyl)di-4,1-phenylene]bis[N,N',N'-triphenyl- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

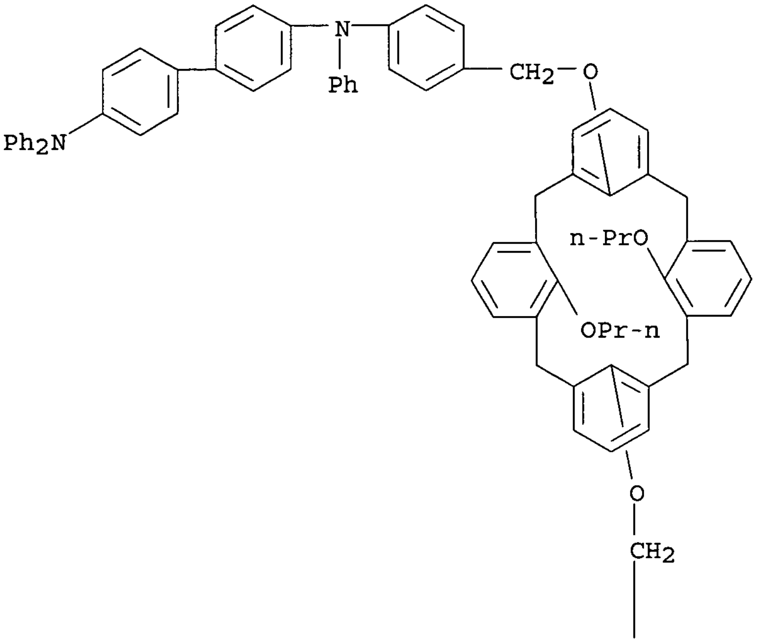


RN 546633-19-6 HCAPLUS

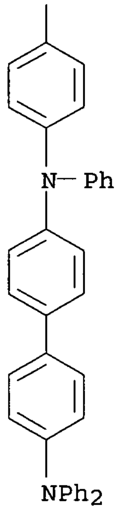
CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-[(26,28-dipropoxypentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,27-diyl)bis(oxymethylene-4,1-phenylene)]bis[N,N',N'-triphenyl-

(9CI) (CA INDEX NAME)

PAGE 1-A

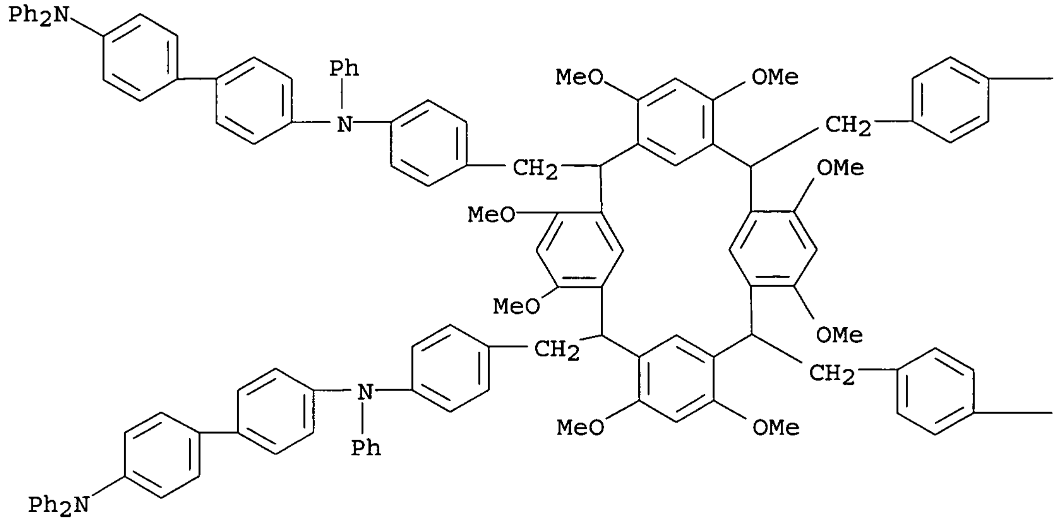


PAGE 2-A

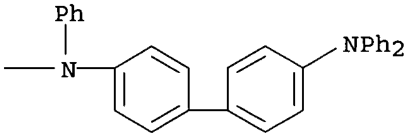


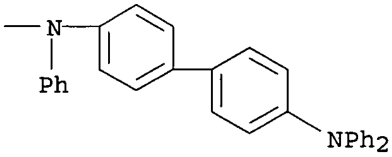
RN 546633-66-3 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'',N'''',N''''''-[(4,6,10,12,16,18,22,24-octamethoxypentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-2,8,14,20-tetrayl)tetrakis(methylene-4,1-phenylene)]tetrakis[N,N',N'-triphenyl-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

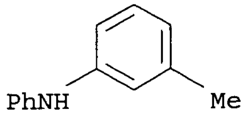




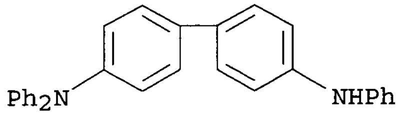
IT **1205-64-7 167218-30-6 204327-06-0**
**546630-99-3 546633-17-4 546634-33-7**
**546634-44-0**
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic electroluminescent material using calixarene or calixresorciarene derivative)

RN 1205-64-7 HCAPLUS

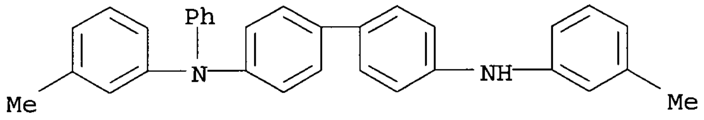
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



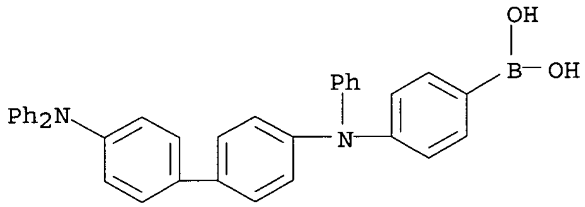
RN 167218-30-6 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N'-triphenyl- (9CI) (CA INDEX NAME)



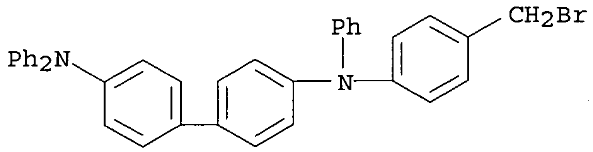
RN 204327-06-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)



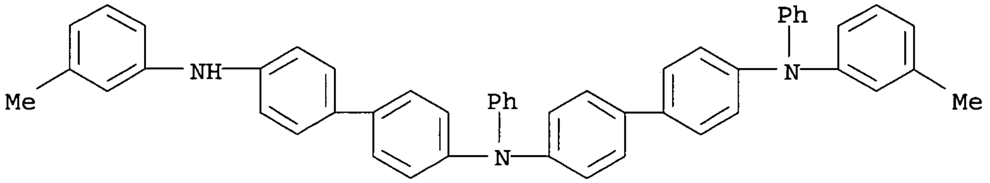
RN 546630-99-3 HCAPLUS
CN Boronic acid, [4-[[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]phenylamino]phenyl]- (9CI) (CA INDEX NAME)



RN 546633-17-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-[4-(bromomethyl)phenyl]-N,N',N'-triphenyl- (9CI) (CA INDEX NAME)



RN 546634-33-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N'-[4'-[(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



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RN   546634-44-0  HCAPLUS
CN   [1,1'-Biphenyl]-4,4'-diamine, N-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-
     N,N'-diphenyl-N'-[4'-(phenylamino)[1,1'-biphenyl]-4-yl]- (9CI)  (CA INDEX
     NAME)
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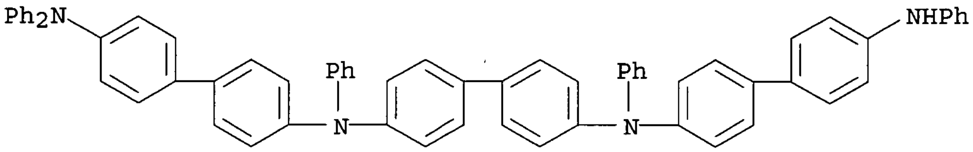

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REFERENCE COUNT:         19    THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS
                               RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34  ANSWER 2 OF 28  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:        2003:241053  HCAPLUS
DOCUMENT NUMBER:         138:262664
TITLE:                   Mixed substance of triphenylamine dimers
INVENTOR(S):             Kita, Yoshio; Yamasaki, Yasuhiro
PATENT ASSIGNEE(S):      Orient Chemical Industries, Ltd., Japan
SOURCE:                  Eur. Pat. Appl., 13 pp.
                         CODEN: EPXXDW
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     EP 1296192           A2    20030326    EP 2002-21217          20020918 <--
     EP 1296192           A3    20040414
     EP 1296192           B1    20050511
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
     JP 2003089681        A2    20030328    JP 2001-284953         20010919 <--
     US 2003064308        A1    20030403    US 2002-246739         20020919 <--
     US 6811940           B2    20041102
PRIORITY APPLN. INFO.:                      JP 2001-284953      A  20010919
GI
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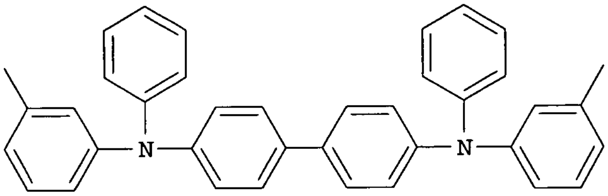


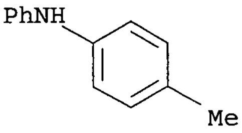
I

AB The present invention intends to provide a TPD derivative being excellent in elec. properties as a compound due to its extremely less content of impurities (TPD analogs) as well as being excellent in film-forming property due to its low crystallinity. The TPD derivative is a mixed substance of triphenylamine dimers which contains at least the compound represented by I.

IT **620-84-8**, 4-Methyldiphenylamine **1205-64-7**,
3-Methyldiphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(mixed substance of triphenylamine dimers for electrophotog photoreceptor containing)

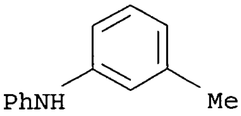
RN 620-84-8 HCAPLUS

CN Benzenamine, 4-methyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 1205-64-7 HCAPLUS

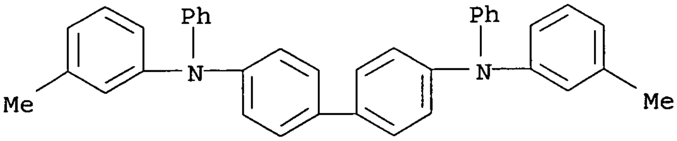
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



IT **65181-78-4**
RL: TEM (Technical or engineered material use); USES (Uses)
(mixed substance of triphenylamine dimers for electrophotog photoreceptor containing)

RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 3 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:143381 HCAPLUS
DOCUMENT NUMBER: 138:187508
TITLE: Preparation of aromatic diamines by dimerization of aromatic halides
INVENTOR(S): Kawamura, Hisayuki; Moriwaki, Fumio
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

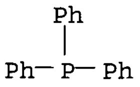
| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| JP 2003055320 | A2 | 20030226 | JP 2001-247018 | | 20010816 <-- |
| CN 1521160 | A | 20040818 | CN 2003-103880 | | 20030214 |
| PRIORITY APPLN. INFO.: | | | JP 2001-247018 | A | 20010816 |

OTHER SOURCE(S): MARPAT 138:187508

AB Ar1Ar2NAr3Ar3NAr1Ar2 [Ar1, Ar2 = (un)substituted 5- to 30-membered monovalent aromatic group; Ar3 = (un)substituted 5- to 30-membered divalent aromatic group; X = halo], useful as materials for heat-resistant electroluminescent devices and charge-transfer agents for electrophotog. photoreceptors, are prepared by dimerization of Ar1Ar2NAr3X (Ar1-Ar3 = same as above; X = halo). Thus, $NiCl_2$ was treated with $Ph_3P$, Zn powder, and KI at 70-80° in vacuo, mixed with THF, and treated with N,N-di(4-diphenyl)-4-bromoaniline/THF at 65-70° for 10 h to give 64% N,N,N',N'-tetrakis(4-diphenyl)-4,4'-benzidine, vs. 3%, when prepared from N,N'-bis(4-diphenyl)-4,4'-benzidine and 4-iodobiphenyl.

IT **603-35-0**, **Triphenylphosphine**, uses **7718-54-9**, **Nickel** chloride, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of aromatic diamines as materials for charge-transfer agents and electroluminescent devices with transition **metal** complexes as dimerization catalysts)

RN 603-35-0 HCAPLUS
CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



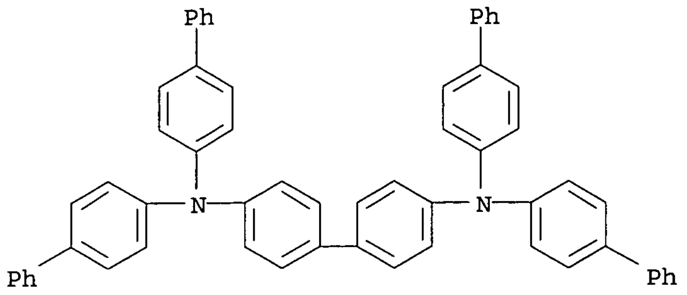
$Ph-P(Ph)-Ph$

RN 7718-54-9 HCAPLUS
CN Nickel chloride ($NiCl_2$) (8CI, 9CI) (CA INDEX NAME)

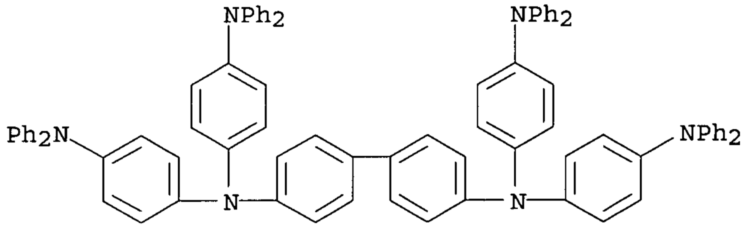
$Cl-Ni-Cl$

IT **164724-35-0P** **214338-27-9P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of aromatic diamines as materials for charge-transfer agents and electroluminescent devices with transition **metal** complexes as dimerization catalysts)

RN 164724-35-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis([1,1'-biphenyl]-4-yl)-
(9CI) (CA INDEX NAME)



RN 214338-27-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis[4-(diphenylamino)phenyl]-
(9CI) (CA INDEX NAME)



L34 ANSWER 4 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 2003:126956 HCAPLUS |
| DOCUMENT NUMBER: | 138:376295 |
| TITLE: | Multicolor organic light-emitting displays by solution processing |
| AUTHOR(S): | Mueller, C. David; Falcou, Aurelie; Reckefuss, Nina; Rojahn, Markus; Wiederhirn, Valerie; Rudati, Paula; Frohne, Holger; Nuyken, Oskar; Becker, Heinrich; Meerholz, Klaus |
| CORPORATE SOURCE: | Department Chemie, Universitaet Muenchen, Munich, 81377, Germany |
| SOURCE: | Nature (London, United Kingdom) **(2003)**, 421(6925), 829-833<br>CODEN: NATUAS; ISSN: 0028-0836 |
| PUBLISHER: | Nature Publishing Group |
| DOCUMENT TYPE: | Journal |
| LANGUAGE: | English |

AB Organic light-emitting diodes (OLEDs) show promise for applications as high-quality self-emissive displays for portable devices such as cellular phones and personal organizers. Although monochrome operation is sufficient for some applications, the extension to multicolor devices-such as RGB (red, green, blue) matrix displays-could greatly enhance their technol. impact. Multicolor OLEDs have been successfully fabricated by vacuum deposition of small electroluminescent mols., but solution processing of larger mols. (electroluminescent polymers) would result in a cheaper and simpler manufacturing process. However, it has proved difficult to combine the solution processing approach with the high-resolution patterning techniques

required to produce a pixelated display. Recent attempts have focused on the modification of standard printing techniques, such as screen printing and ink-jetting, but those still have tech. drawbacks. The authors report a class of electroluminescent polymers that can be patterned in a way similar to standard photoresist materials-soluble polymers with oxetane side groups that can be crosslinked photochem. to produce insol. polymer networks in desired areas. The resolution of the process is sufficient to fabricate pixelated matrix displays. Consecutive deposition of polymers that are luminescent in each of the three RGB colors yielded a device with efficiencies comparable to state-of-the-art OLEDs and even slightly reduced onset voltages.

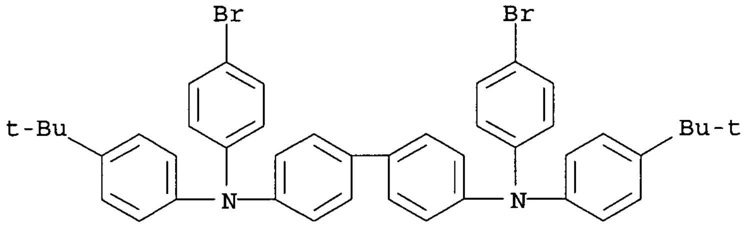
IT **463944-36-7**

RL: RCT (Reactant); RACT (Reactant or reagent)

(Suzuki polycondensation in synthesis of electroluminescent oxethane-functionalized spirobifluorene-fluorene polymers with photoresist properties)

RN 463944-36-7 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



IT **463944-39-0P 521985-56-8P 521985-57-9P**
**521985-58-0P**

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); **PREP (Preparation)**; USES (Uses)

(photoimaging electroluminescent oxethane-functionalized spirobifluorene-fluorene polymers and fabrication of pixelated matrix displays using this compds.)

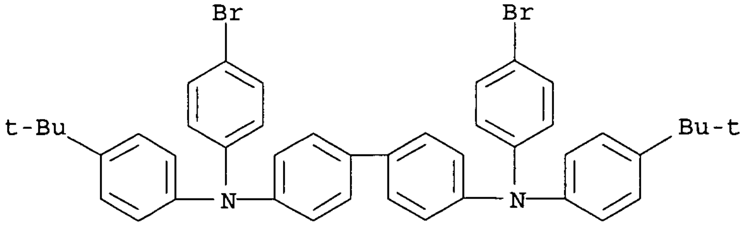
RN 463944-39-0 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

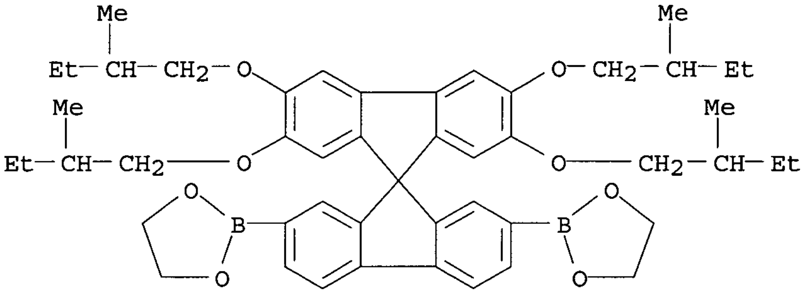
CRN 463944-36-7

CMF C44 H42 Br2 N2



CM 2

CRN 396123-43-6
CMF C49 H62 B2 O8



CM 3

CRN 396123-39-0
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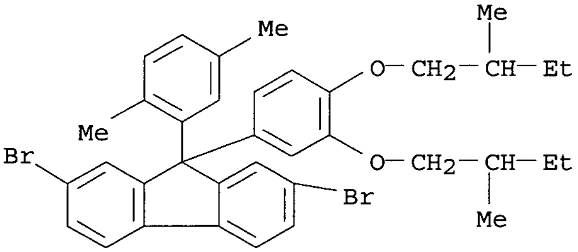
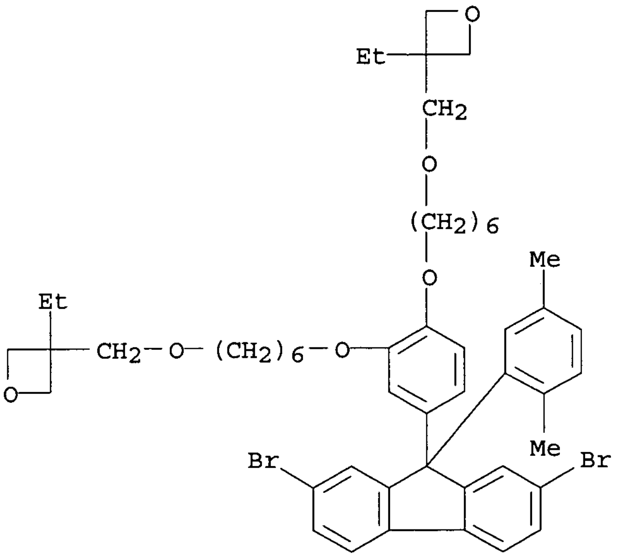


RN 521985-56-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 3,3'-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-1,2-phenylene]bis(oxy-6,1-hexanediyloxymethylene)]bis[3-ethyloxetane] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

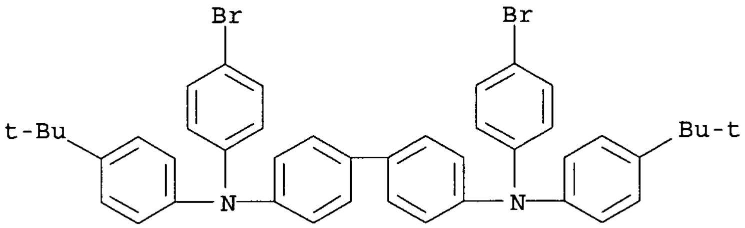
CM 1

CRN 521985-55-7
CMF C51 H64 Br2 O6



CM 2

CRN 463944-36-7
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6
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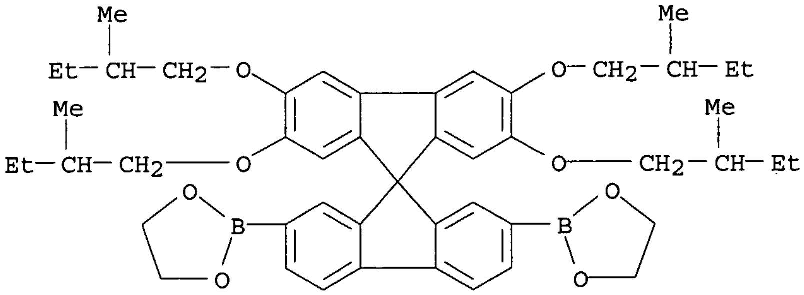
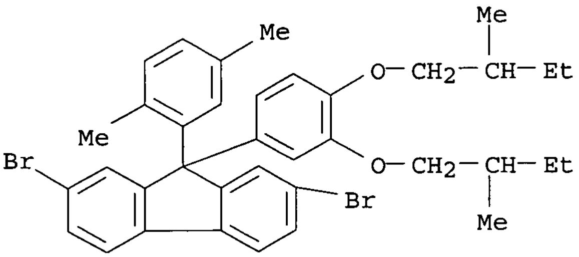


CM 4

CRN 396123-39-0
CMF C37 H40 Br2 O2



RN 521985-57-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 1,4-bis[2-(4-bromo-2,5-dimethoxyphenyl)ethenyl]-2-[(2-ethylhexyl)oxy]-5-methoxybenzene, 3,3'-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-1,2-phenylene]bis(oxy-6,1-hexanediyloxymethylene)]bis[3-ethyloxetane] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 521985-55-7
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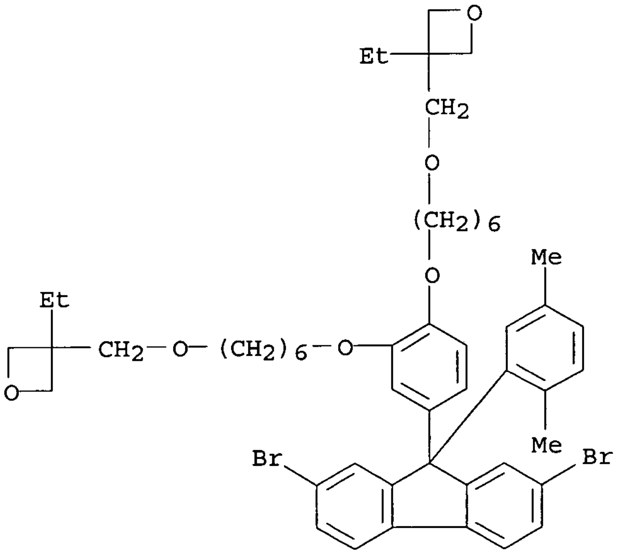
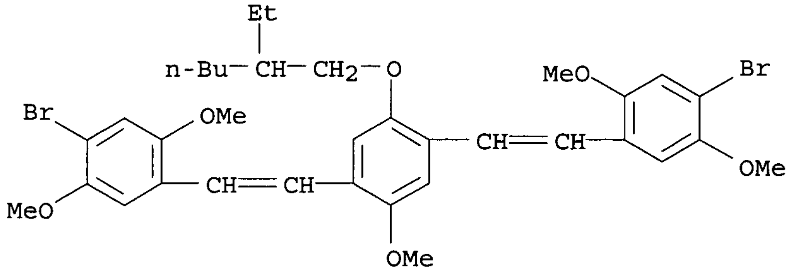


CM 2

CRN 501434-75-9
CMF C35 H42 Br2 O6



CM 3

CRN 463944-36-7
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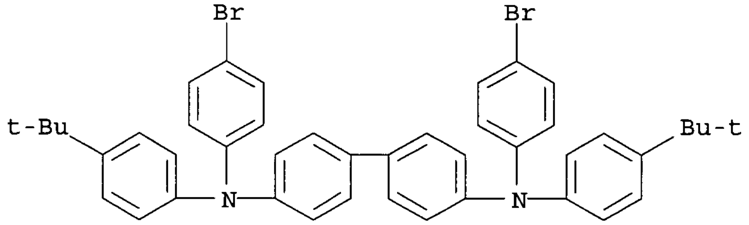

CM 4

CRN 396123-43-6
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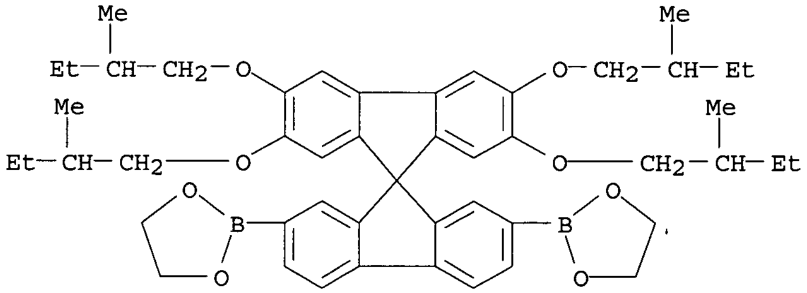
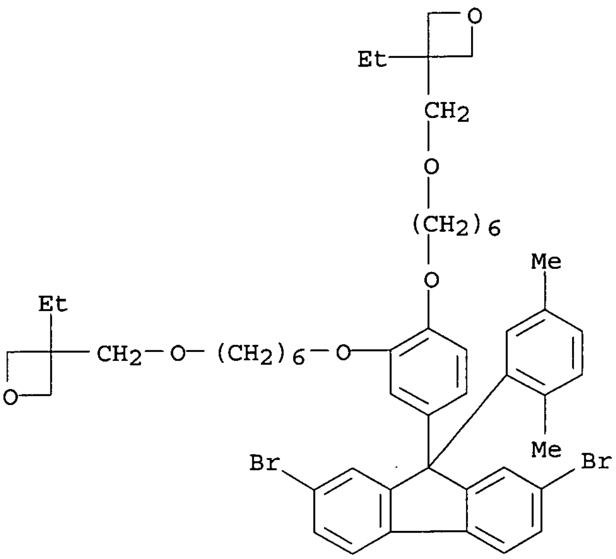


RN 521985-58-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 4,7-bis(5-bromo-2-thienyl)-2,1,3-benzothiadiazole, 4,7-dibromo-2,1,3-benzothiadiazole, 3,3'-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-1,2-phenylene]bis(oxy-6,1-hexanediyloxymethylene)]bis[3-ethyloxetane] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

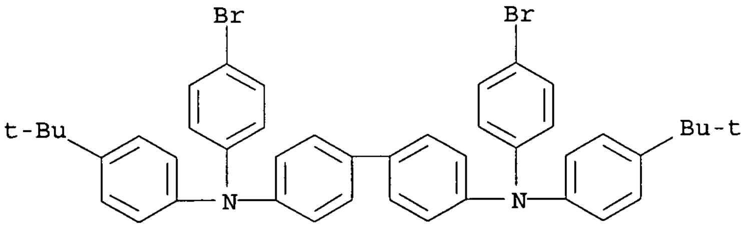
CM 1

CRN 521985-55-7
CMF C51 H64 Br2 O6



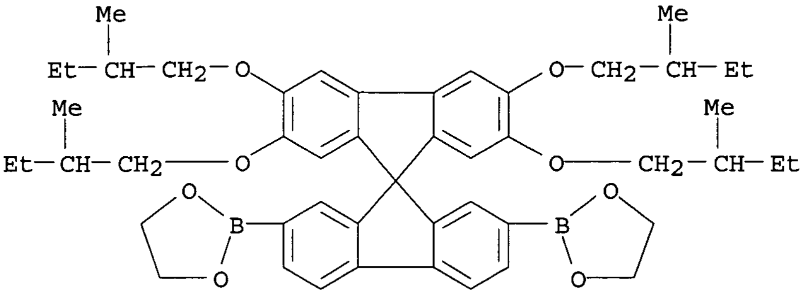
CM 2

CRN 463944-36-7
CMF C44 H42 Br2 N2



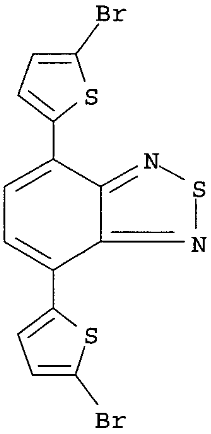
CM 3

CRN 396123-43-6
CMF C49 H62 B2 O8



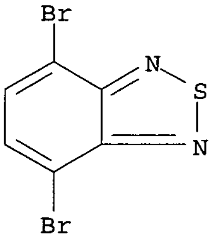
CM 4

CRN 288071-87-4
CMF C14 H6 Br2 N2 S3



CM 5

CRN 15155-41-6
CMF C6 H2 Br2 N2 S

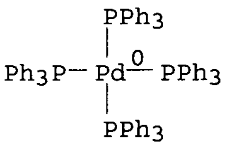


IT **14221-01-3**, Tetrakis(**triphenylphosphine**)
**palladium**
RL: CAT (Catalyst use); USES (Uses)

(preparation of electroluminescent oxethane-functionalized spirobifluorene-fluorene polymers with photoresist properties)

RN 14221-01-3 HCAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (9CI) (CA INDEX NAME)



$$Pd^{0}(PPh_3)_4$$

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 5 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:779212 HCAPLUS

DOCUMENT NUMBER: 138:14200

TITLE: Synthesis and Characteristics of Poly[N,N'-diphenyl-N,N'-bis(4-aminobiphenyl)-(1,1'-biphenyl)-4,4'-diamine pyromellitimide] as a Hole Injecting and Transporting Layer for Hybrid Organic Light-Emitting Device

AUTHOR(S): Kim, Youngkyoo; Han, Kijong; Ha, Chang-Sik

CORPORATE SOURCE: New Electroluminescent Systems Center, Institute for Advanced Engineering (IAE), Kyounggi-Do, 449-860, S. Korea

SOURCE: Macromolecules (**2002**), 35(23), 8759-8767
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

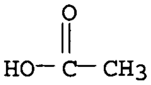
LANGUAGE: English

AB A hole injection and transport layer polymer, poly[N,N'-diphenyl-N,N'-bis(4-aminobiphenyl)-(1,1'-biphenyl)-4,4'-diamine pyromellitimide] (PMDA-DBABBD PI), was prepared by thermal imidization of the poly(amic acid) (PAA), which in term was prepared by polymerization of pyromellitic dianhydride with DBABBD. The DBABBD was prepared by reduction from N,N'-diphenyl-N,N'-bis(4-nitrobiphenyl)-(1,1'-biphenyl)-4,4'-diamine, via **palladium** -catalyzed amination. The polyimide (PI) was characterized by 1H NMR, 13C NMR, FTIR, HR GC-MS, EA, and DSC methods. The characteristics of the PAA and PI thin films were studied by XPS and impedance spectroscopy. The PAA and PI thin films were assembled into hybrid organic electroluminescent device structures (HOLED) to examine the performance as hole injection and transport layer. The PI thin film having glass transition temperature of 200° showed stable characteristics suitable for application in HOLED whereas PAA thin films were unstable. The power efficiency of HOLED with PI thin film was 0.23 cd/A at 4000 cd/m2.

IT **3375-31-3**, **Palladium**(II) acetate
RL: CAT (Catalyst use); USES (Uses)
(amination catalyst; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)

RN 3375-31-3 HCAPLUS

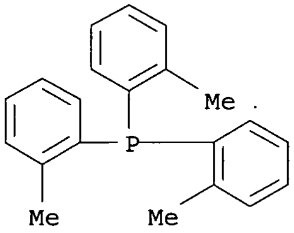
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



$HO-C(=O)-CH_3$

●1/2 Pd(II)

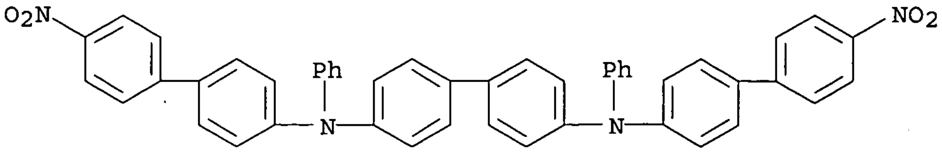
IT **6163-58-2**, Tri-o-**tolylphosphine**
RL: CAT (Catalyst use); USES (Uses)
(catalyst **ligand**; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)
RN 6163-58-2 HCAPLUS
CN Phosphine, tris(2-methylphenyl)- (9CI) (CA INDEX NAME)



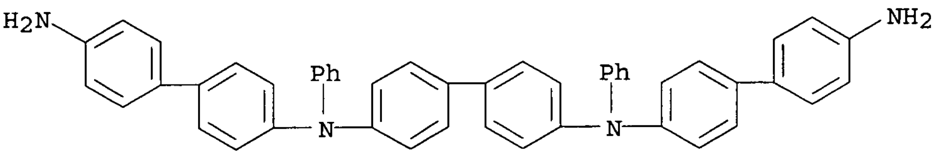
IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(electrode layer; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

IT **263875-21-4P**, N,N'-Diphenyl-N,N'-bis(4-nitrobiphenyl)[1,1'-biphenyl]-4,4'-diamine
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(intermediate; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)
RN 263875-21-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4'-nitro[1,1'-biphenyl]-4-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

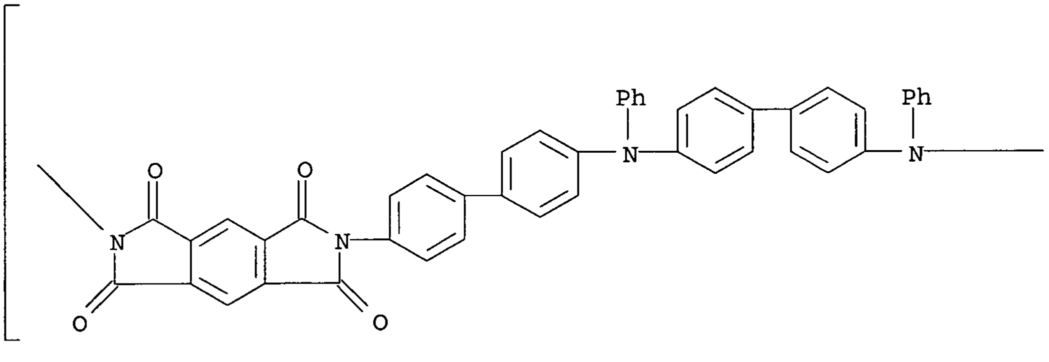


IT **263875-20-3P**, N,N'-Diphenyl-N,N'-bis(4-aminobiphenyl)[1,1'-biphenyl]-4,4'-diamine
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
(monomer; preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)
RN 263875-20-3 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4'-amino[1,1'-biphenyl]-4-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

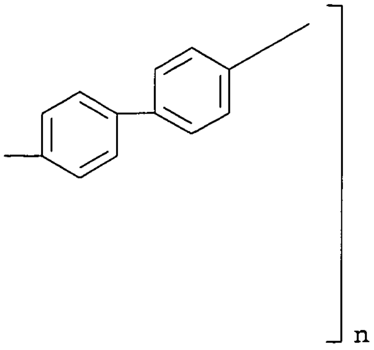


IT **263875-23-6P**, N,N'-Diphenyl-N,N'-bis(4-aminobiphenyl)[1,1'-biphenyl]-4,4'-diamine-pyromellitic dianhydride copolymer, polyimide SRU
**477350-59-7P**, N,N'-Diphenyl-N,N'-bis(4-aminobiphenyl)[1,1'-biphenyl]-4,4'-diamine-pyromellitic dianhydride copolymer
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); **PREP (Preparation)**; USES (Uses)
(preparation and NMR spectra and optical properties of poly[N,N'-di-Ph-N,N'-bis(aminobiphenyl)-(biphenyl)diamine pyromellitimide] as hole injection layer in hybrid organic LEDs)
RN 263875-23-6 HCAPLUS
CN Poly[(5,7-dihydro-1,3,5,7-tetraoxobenzo[1,2-c:4,5-c']dipyrrole-2,6(1H,3H)-diyl)[1,1'-biphenyl]-4,4'-diyl(phenylimino)[1,1'-biphenyl]-4,4'-diyl(phenylimino)[1,1'-biphenyl]-4,4'-diyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



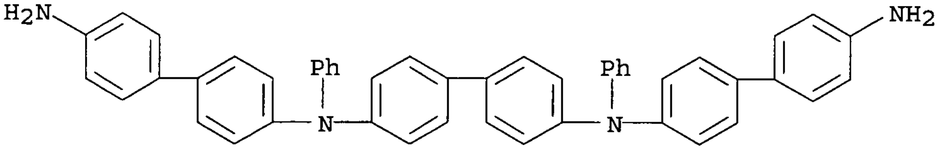
RN 477350-59-7 HCAPLUS

CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, polymer with N,N'-bis(4'-amino[1,1'-biphenyl]-4-yl)-N,N'-diphenyl[1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 263875-20-3

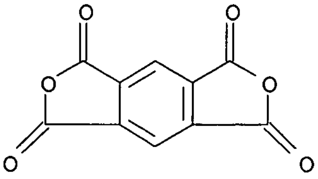
CMF C48 H38 N4



CM 2

CRN 89-32-7

CMF C10 H2 O6



REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 6 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:728866 HCAPLUS

DOCUMENT NUMBER: 137:247481

TITLE: Preparation of aromatic amines from aryl halides using **palladium** catalysts

INVENTOR(S): Sato, Toshiyasu; Shoji, Shigenobu; Ogura, Naoto

PATENT ASSIGNEE(S): Nippo Chemical Kogyo Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

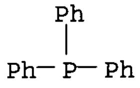
| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| JP 2002275130 | A2 | 20020925 | JP 2002-2641 | | 20020109 <-- |
| PRIORITY APPLN. INFO.: | | | JP 2001-1627 | A | 20010109 |

OTHER SOURCE(S): MARPAT 137:247481

AB Aromatic amines are prepared by reaction of aromatic bromides or iodides with amines in the presence of Pd catalysts. 4,4'-Diiodobiphenyl was aminated by Ph2NH in xylene in the presence of tert-BuONa, Pd acetate, and PPh3 at 130° for 9 h to give 88.6% N,N,N',N'-tetraphenylbenzidine.

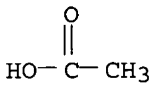
IT **603-35-0**, **Triphenylphosphine**, uses **3375-31-3**
**14221-01-3**, Tetrakis(**triphenylphosphine**)
**palladium**
RL: CAT (Catalyst use); USES (Uses)
(preparation of aromatic amines from aryl halides using **palladium** catalysts)

RN 603-35-0 HCAPLUS
CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



$$\mathrm{Ph-\overset{\overset{Ph}{|}}{P}-Ph}$$

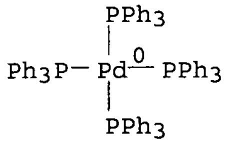
RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



$$\mathrm{HO-\overset{\overset{O}{\|}}{C}-CH_3}$$

●1/2 Pd(II)

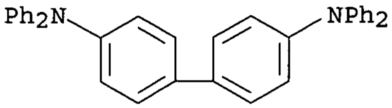
RN 14221-01-3 HCAPLUS
CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (9CI) (CA INDEX NAME)



$$\mathrm{Ph_3P-\underset{\underset{PPh_3}{|}}{\overset{\overset{PPh_3}{|}}{Pd}}\overset{0}{-}PPh_3}$$

IT **15546-43-7P**, N,N,N',N'-Tetraphenylbenzidine
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of aromatic amines from aryl halides using **palladium** catalysts)

RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 7 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:368916 HCAPLUS
DOCUMENT NUMBER: 136:393041
TITLE: Organic electroluminescent devices
INVENTOR(S): Toguchi, Satoru; Ishikawa, Hitoshi; Tada, Hiroshi; Oda, Atsushi
PATENT ASSIGNEE(S): Samsung Electronics Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 87 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

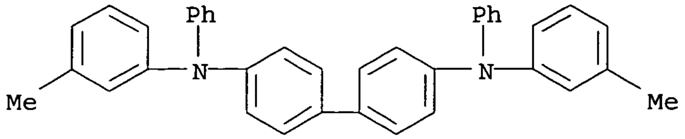
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|
| US 2002058156 | A1 | 20020516 | US 2001-985657 | 20011105 | <-- |
| US 6746784 | B2 | 20040608 | | | |
| JP 2002151263 | A2 | 20020524 | JP 2000-339603 | 20001107 | <-- |
| JP 3548841 | B2 | 20040728 | | | |
| JP 2002151264 | A2 | 20020524 | JP 2000-339604 | 20001107 | <-- |
| JP 3548842 | B2 | 20040728 | | | |
| JP 2002151265 | A2 | 20020524 | JP 2000-339605 | 20001107 | <-- |
| JP 3548843 | B2 | 20040728 | | | |

PRIORITY APPLN. INFO.: JP 2000-339603 A 20001107
JP 2000-339604 A 20001107
JP 2000-339605 A 20001107
OTHER SOURCE(S): MARPAT 136:393041

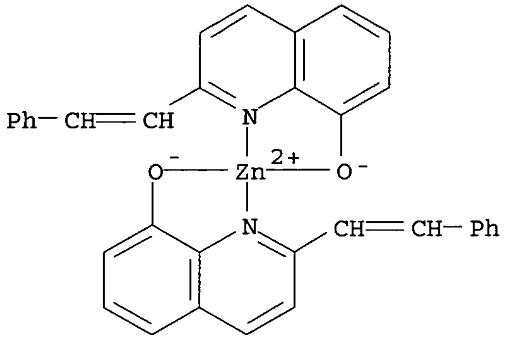
AB Organic electroluminescent devices comprising an anode; a cathode; and $\geq 1$ organic thin film layers including a light-emitting layer sandwiched between said anode and said cathode ADIW $\geq 1$ organic thin film layer contains a compound including an (un)substituted cyclohexylidenemethine group.

IT **65181-78-4**, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine **194794-43-9** **426218-62-4**
RL: DEV (Device component use); USES (Uses)
(organic electroluminescent devices employing cyclohexylidenemethine derivs.)

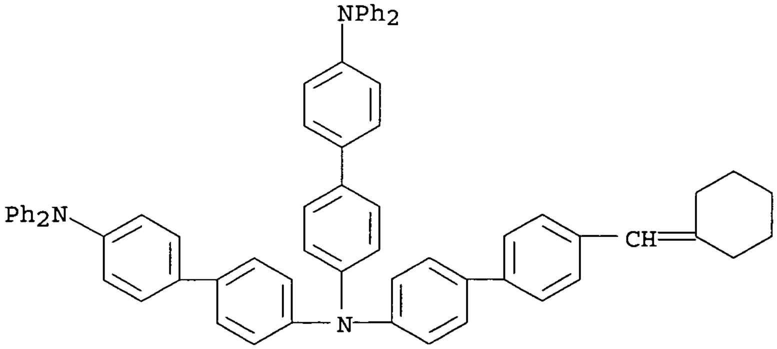
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 194794-43-9 HCAPLUS
CN Zinc, bis[2-(2-phenylethenyl)-8-quinolinolato-κN1,κO8]-,
(T-4)- (9CI) (CA INDEX NAME)

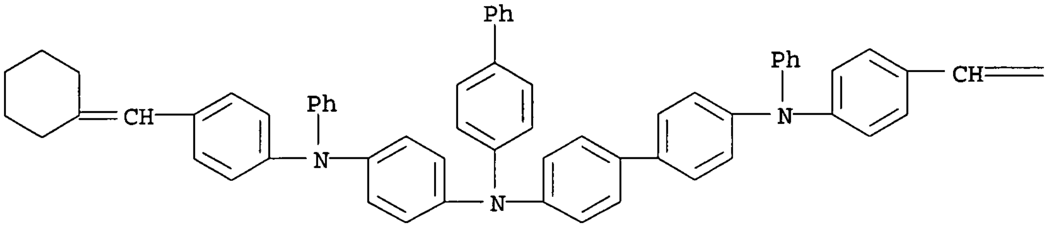


RN 426218-62-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-[4'-(cyclohexylidenemethyl)[1,1'-biphenyl]-4-yl]-N-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-N',N'-diphenyl- (9CI)
(CA INDEX NAME)

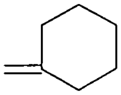


IT **426218-61-3P**
RL: DEV (Device component use); SPN (Synthetic preparation); **PREP (Preparation)**; USES (Uses)
(organic electroluminescent devices employing cyclohexylidenemethine derivs.)
RN 426218-61-3 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-[1,1'-biphenyl]-4-yl-N'-[4-(cyclohexylidenemethyl)phenyl]-N-[4-[[4-(cyclohexylidenemethyl)phenyl]phenylamino]phenyl]-N'-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A



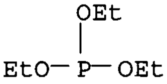
PAGE 1-B



IT 122-52-1, Triethyl phosphite 98327-87-8,
2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic electroluminescent devices employing cyclohexylidenemethine derivs.)

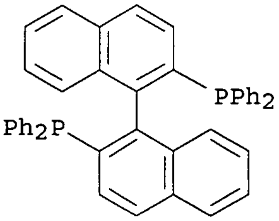
RN 122-52-1 HCAPLUS

CN Phosphorous acid, triethyl ester (8CI, 9CI) (CA INDEX NAME)



RN 98327-87-8 HCAPLUS

CN Phosphine, [1,1'-binaphthalene]-2,2'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 2001:933861 HCAPLUS |
| DOCUMENT NUMBER: | 136:61506 |
| TITLE: | Electrophotographic photoconductor, process cartridge, electrophotographic apparatus, and manufacture of electrophotographic photoconductor |
| INVENTOR(S): | Tanaka, Takakazu; Ogaki, Harunobu; Nakajima, Yuka; |

Kunieda, Mitsuhiro
PATENT ASSIGNEE(S): Canon Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

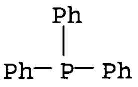
| | PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|---|
| | JP 2001356507 | A2 | 20011226 | JP 2001-110115 | | 20010409 | <-- |
| | US 2002048710 | A1 | 20020425 | US 2001-832920 | | 20010412 | <-- |
| | US 6818368 | B2 | 20041116 | | | | |
| | US 2005026059 | A1 | 20050203 | US 2004-924807 | | 20040825 | |
| PRIORITY APPLN. INFO.: | | | | JP 2000-113811 | A | 20000414 | |
| | | | | US 2001-832920 | A3 | 20010412 | |

OTHER SOURCE(S): MARPAT 136:61506

AB An electrophotog. photoconductor includes a triarylamine charge transport substance synthesized from an amine compound and an arylhalide with catalysts of Ar1P(Ar2)Ar3 [Ar1-3 = alkyl, aryl] and Pd compound The synthesis is carried out in the presence of alkali **metal** alkoxide. The electrophotog. photoconductor shows excellent sensitivity and durability.

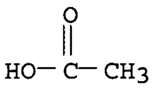
IT **603-35-0**, uses **3375-31-3** **7647-10-1**, **Palladium** chloride **36228-06-5** **36297-54-8** **48243-18-1**, **Palladium**(0) tris(dibenzylideneacetone) **224311-51-7** **382602-22-4** **382602-23-5** **382602-24-6**
RL: CAT (Catalyst use); USES (Uses)
(synthesis of triarylamine charge transport substance for electrophotog. photoconductor showing improved durability and sensitivity)

RN 603-35-0 HCAPLUS
CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



$\mathrm{Ph{-}\overset{\overset{\displaystyle Ph}{|}}{P}{-}Ph}$

RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



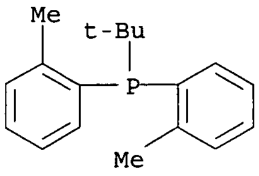
$\mathrm{HO{-}\overset{\overset{\displaystyle O}{\|}}{C}{-}CH_3}$

●1/2 Pd(II)

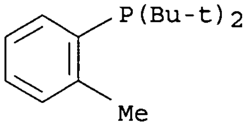
RN 7647-10-1 HCAPLUS
CN Palladium chloride (PdCl2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Cl— Pd— Cl

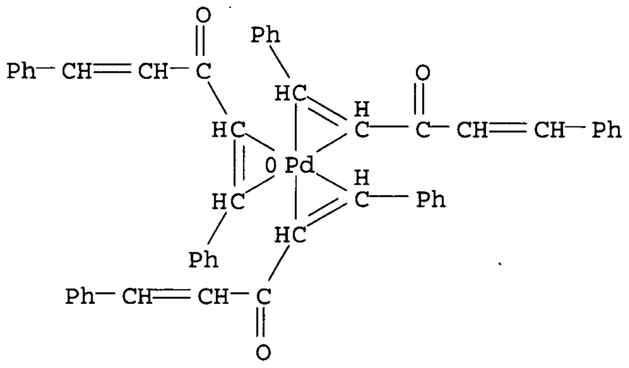
RN 36228-06-5 HCAPLUS
CN Phosphine, (1,1-dimethylethyl)bis(2-methylphenyl)- (9CI) (CA INDEX NAME)



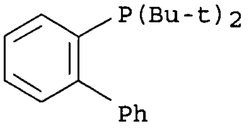
RN 36297-54-8 HCAPLUS
CN Phosphine, bis(1,1-dimethylethyl)(2-methylphenyl)- (9CI) (CA INDEX NAME)



RN 48243-18-1 HCAPLUS
CN Palladium, tris[(1,2-η)-1,5-diphenyl-1,4-pentadien-3-one]- (9CI) (CA INDEX NAME)

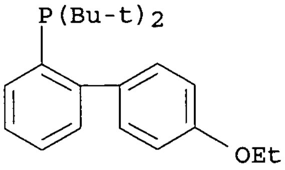


RN 224311-51-7 HCAPLUS
CN Phosphine, [1,1'-biphenyl]-2-ylbis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

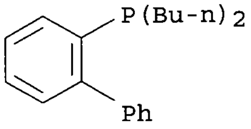


RN 382602-22-4 HCAPLUS

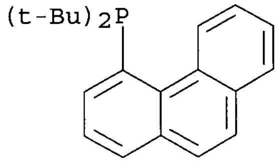
CN Phosphine, bis(1,1-dimethylethyl)(4'-ethoxy[1,1'-biphenyl]-2-yl)- (9CI) (CA INDEX NAME)



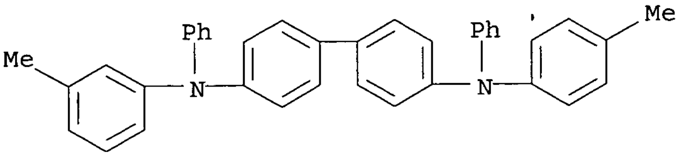
RN 382602-23-5 HCAPLUS
CN Phosphine, [1,1'-biphenyl]-2-yldibutyl- (9CI) (CA INDEX NAME)



RN 382602-24-6 HCAPLUS
CN Phosphine, bis(1,1-dimethylethyl)-4-phenanthrenyl- (9CI) (CA INDEX NAME)



IT **300576-41-4P**
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(synthesis of triarylamine charge transport substance for electrophotog. photoconductor showing improved durability and sensitivity)
RN 300576-41-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N'-(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



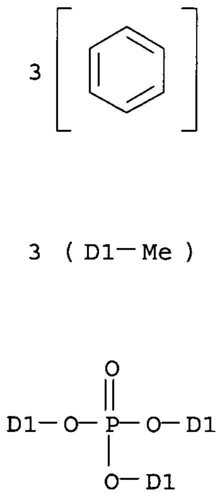
L34 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:692078 HCAPLUS
DOCUMENT NUMBER: 135:264322
TITLE: Photorefractive material, photorefractive component

and hologram
INVENTOR(S): Sato, Hisaya; Ogino, Kenji
PATENT ASSIGNEE(S): Showa Denko K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 2001255566 | A2 | 20010921 | JP 2000-66649 | 20000310 <-- |
| PRIORITY APPLN. INFO.: | | | JP 2000-66649 | 20000310 |

AB The invention refers to a photorefractive material comprising a polymer formed via condensation of an aromatic tertiary amine and an aldehyde for an increased reaction time (< 1 s, preferably < 30 ms).

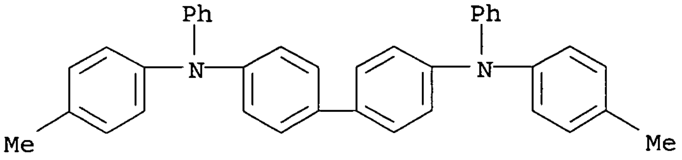
IT **1330-78-5**, Tricresyl phosphate
RL: DEV (Device component use); USES (Uses)
(photorefractive material, photorefractive component and hologram)
RN 1330-78-5 HCAPLUS
CN Phosphoric acid, tris(methylphenyl) ester (9CI) (CA INDEX NAME)



IT **240133-88-4P 361482-50-0P**
RL: DEV (Device component use); SPN (Synthetic preparation); **PREP (Preparation)**; USES (Uses)
(photorefractive material, photorefractive component and hologram)
RN 240133-88-4 HCAPLUS
CN Formaldehyde, polymer with N,N'-bis(4-methylphenyl)-N,N'-diphenyl[1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 20441-06-9
CMF C38 H32 N2



CM 2

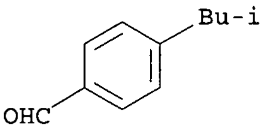
CRN 50-00-0
CMF C H2 O

$H_2C{=}O$

RN 361482-50-0 HCAPLUS
CN Benzaldehyde, 4-(2-methylpropyl)-, polymer with N,N'-bis(4-methylphenyl)-N,N'-diphenyl[1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

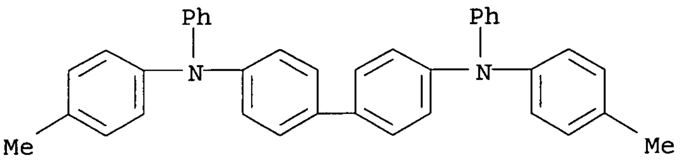
CM 1

CRN 40150-98-9
CMF C11 H14 O



CM 2

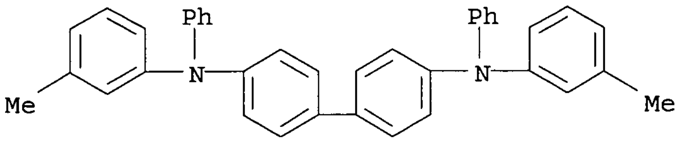
CRN 20441-06-9
CMF C38 H32 N2



IT **7681-65-4**, **Copper** iodide CuI **65181-78-4**, TPD
RL: RCT (Reactant); RACT (Reactant or reagent)
(photorefractive material, photorefractive component and hologram)
RN 7681-65-4 HCAPLUS
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:578768 HCAPLUS
DOCUMENT NUMBER: 135:280149
TITLE: Preparation of N,N,N',N'-tetraphenylbiphenyldiamines for organic electroluminescent device as hole transport materials
AUTHOR(S): Chai, Sheng-yong; An, Zhong-wei
CORPORATE SOURCE: Xi'an Ruilian Modern Electronic Chemicals Co., Ltd., Xi'an, 710065, Peop. Rep. China
SOURCE: Yejing Yu Xianshi (**2001**), 16(2), 124-128
CODEN: YYXIFY; ISSN: 1007-2780
PUBLISHER: Kexue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

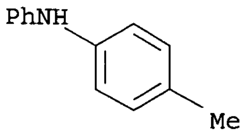
AB The tetraphenylbiphenyldiamines used as the hole transport materials have great application potentiality in organic electroluminescent devices. Three of these compds. were prepared by Ulmann reaction. They were N,N'-diphenyl-N,N'-bis(3-methylphenyl)[1,1'-biphenyl]-4,4'-diamine (1), N,N'-diphenyl-N,N'-bis(4-methylphenyl)[1,1'-biphenyl]-4,4'-diamine (2), and N,N,N',N'-tetraphenyl-[1,1'-biphenyl]-4,4'-diamine (3). The method of separating products from the reaction mixts. was improved, and the yields and purities are (1) Y 85%, P 97.6%; (2) Y 95%, P 98.5% and (3) Y 70%, 98.1%, resp. Their IR spectra were measured.

IT **122-39-4**, Diphenylamine, reactions **620-84-8**, (4-Methylphenyl)phenylamine **1205-64-7**, (3-Methylphenyl)phenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(Ulmann substitution reaction with diiodobiphenyl)

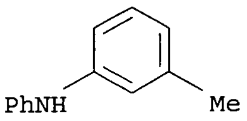
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph—NH—Ph

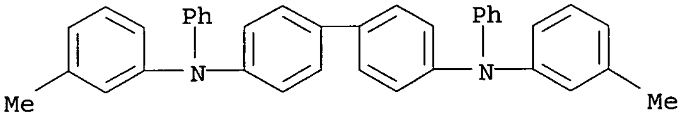
RN 620-84-8 HCAPLUS
CN Benzenamine, 4-methyl-N-phenyl- (9CI) (CA INDEX NAME)



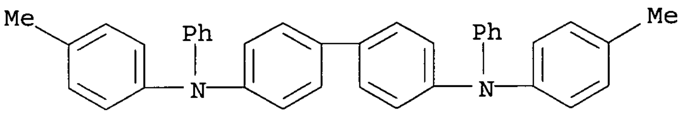
RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



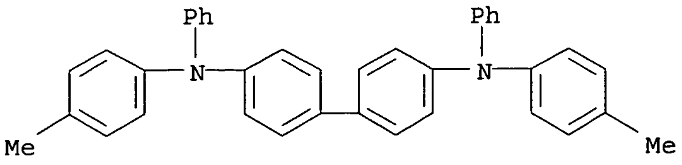
IT **213417-28-8P**, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)[1,1'-biphenyl]-4,4'-diamine ion(2+) radical **362588-11-2P**
RL: PNU (Preparation, unclassified); PREP (Preparation)
(formation of)
RN 213417-28-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-, radical ion(2+) (9CI) (CA INDEX NAME)



RN 362588-11-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl-, radical ion(2+) (9CI) (CA INDEX NAME)

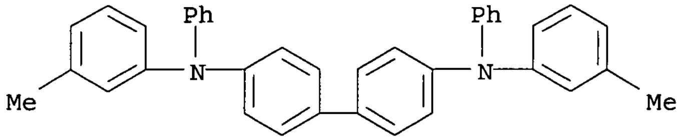


IT **20441-06-9P**, N,N'-Diphenyl-N,N'-bis(4-methylphenyl)[1,1'-biphenyl]-4,4'-diamine **65181-78-4P**, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)[1,1'-biphenyl]-4,4'-diamine
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(preparation for organic electroluminescent device as hole transport materials
and IR spectra and oxidation of)
RN 20441-06-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

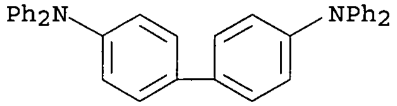


RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



IT **15546-43-7P**, N,N,N',N'-Tetraphenyl-[1,1'-biphenyl]-4,4'-diamine
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(preparation for organic electroluminescent device as hole transport materials and IR spectra of)
RN 15546-43-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 11 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 2001:463212 HCAPLUS |
| DOCUMENT NUMBER: | 135:68360 |
| TITLE: | Electroluminescent devices and organic compounds for hole transporters |
| INVENTOR(S): | Shirota, Yasuhiko |
| PATENT ASSIGNEE(S): | Osaka University, Japan |
| SOURCE: | Jpn. Kokai Tokkyo Koho, 6 pp.<br>CODEN: JKXXAF |
| DOCUMENT TYPE: | Patent |
| LANGUAGE: | Japanese |
| FAMILY ACC. NUM. COUNT: | 1 |
| PATENT INFORMATION: | |

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 2001172232 | A2 | 20010626 | JP 1999-362784 | 19991221 <-- |
| PRIORITY APPLN. INFO.: | | | JP 1999-362784 | 19991221 |

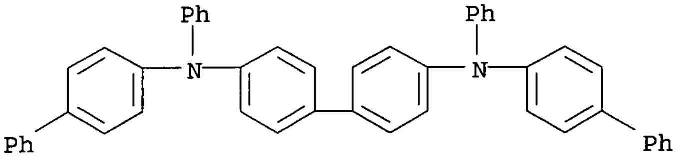
AB The device comprises a substrate, a transparent electrode, a hole-transport layer containing 4,4',4"-tris[biphenyl-2-yl(phenyl)amino]triphenylamine and/or 4,4',4"-tris[biphenyl-4-yl(3-methylphenyl)amino]triphenylamine, a light-emitting layer, and a backing electrode laminated in the order. The device may also contain a 2nd hole-transport layer containing N,N'-di(biphenyl-4-yl)-N,N'-diphenyl-(1,1'-biphenyl)-4,4'-diamine. The light-emitting layer may comprise tris(8-quinolinolato)aluminum. The compds. specified above and their use as hole transporters are also claimed. The devices are especially suitable for use in full color flat panel displays.

IT **134008-76-7**
RL: DEV (Device component use); TEM (Technical or engineered material

use); USES (Uses)
(hole transporter; tris[biphenyl(phenyl)amino]triphenylamines as hole transporters in electroluminescent devices for high luminance)

RN 134008-76-7 HCAPLUS

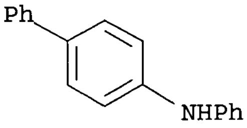
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



IT **32228-99-2**, N-Phenyl-4-biphenylylamine **148935-08-4**
RL: RCT (Reactant); RACT (Reactant or reagent)
(tris[biphenyl(phenyl)amino]triphenylamines as hole transporters in electroluminescent devices for high luminance)

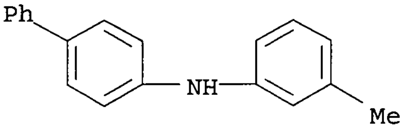
RN 32228-99-2 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, N-phenyl- (9CI) (CA INDEX NAME)



RN 148935-08-4 HCAPLUS

CN [1,1'-Biphenyl]-4-amine, N-(3-methylphenyl)- (9CI) (CA INDEX NAME)



L34 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 2000:785938 HCAPLUS |
| DOCUMENT NUMBER: | 133:315395 |
| TITLE: | (Hydroxyphenyl)**pyridine** derivative, its **metal** complexes and application as electroluminescence material |
| INVENTOR(S): | Wang, Yue; Wu, Ying; Li, Yanqin; Liu, Yu; Lu, Dan; Shen, Jiacong |
| PATENT ASSIGNEE(S): | Jilin Univ., Peop. Rep. China |
| SOURCE: | Faming Zhuanli Shenqing Gongkai Shuomingshu, 23 pp. CODEN: CNXXEV |
| DOCUMENT TYPE: | Patent |
| LANGUAGE: | Chinese |
| FAMILY ACC. NUM. COUNT: | 1 |
| PATENT INFORMATION: | |

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|

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     ---------------     ----    --------    --------------------    --------
     CN 1245822           A      20000301    CN 1999-118700          19990905 <--
     CN 1107098           B      20030430
PRIORITY APPLN. INFO.:                       CN 1999-118700          19990905
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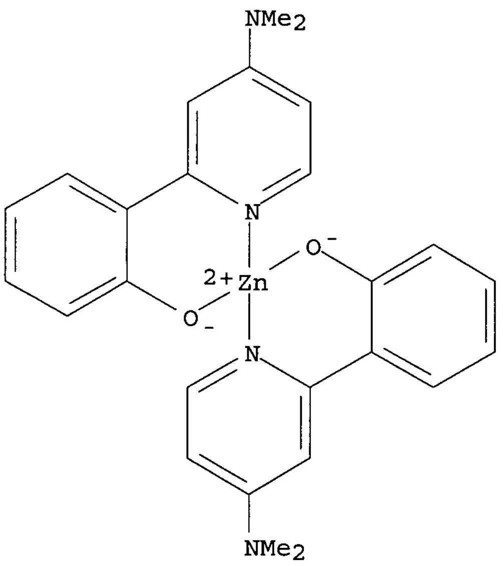
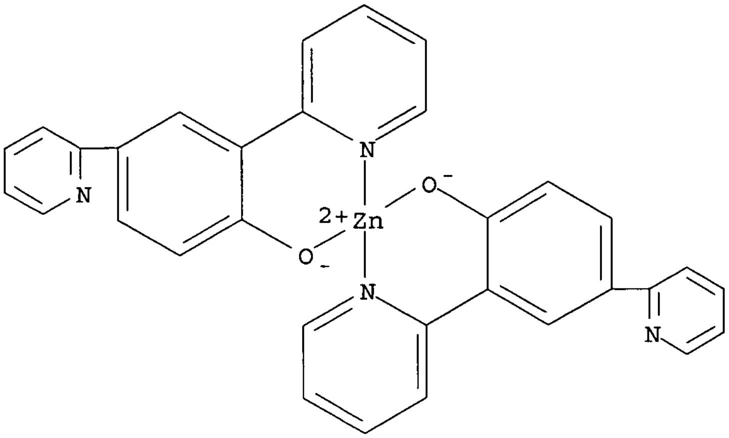
AB The title complexes with Zn, Be, Mg, Ca, B, Al, Ga, or In, etc., useful as electroluminescence material being capable of emitting blue, red, yellow, orange, and white lights, are prepared Some **ligands** such as 2-(2-pyridyl)phenol, 2,6-bis(2-hydroxyphenyl)**pyridine**, 4-nitro-2-(2-pyridyl)phenol, 4-hydroxy-3-benzonitrile, 4-nitro-3-(4-phenyl-2-pyridyl)benzonitrile, 4-methyl-2-(4-methyl-2-pyridyl)phenol, 4- methoxy-2-(4-methoxy-2-pyridyl)phenol, 2-(4-dimethylamino-2-pyridyl)phenol, 2-(4-phenyl-2-pyridyl)phenol, 2,4-bis(2- pyridyl)phenol, 2,6-bis(2-hydroxyphenyl)-4-methylpyridine, N,N'-bis(3-methylphenyl)-N,N'-diphenylbenzidine are also synthesized. Some electroluminescent devices containing the **metal** complexes as phosphors, ITO, polymeric materials, etc. were manufactured by vapor deposition and electroplating.

IT **302580-59-2P 302580-63-8P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
((hydroxyphenyl)**pyridine metal** complexes as electroluminescence material)

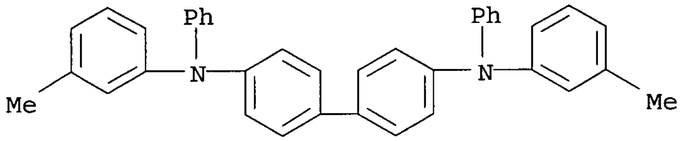
RN 302580-59-2 HCAPLUS
CN Zinc, bis[2-[4-(dimethylamino)-2-pyridinyl-κN]phenolato-κO]-, (T-4)- (9CI) (CA INDEX NAME)



RN 302580-63-8 HCAPLUS
CN Zinc, bis[2-(2-pyridinyl-κN)-4-(2-pyridinyl)phenolato-κO]-, (T-4)- (9CI) (CA INDEX NAME)



IT **65181-78-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP (Preparation)**; RACT (Reactant or reagent)
((hydroxyphenyl)**pyridine metal** complexes as electroluminescence material)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:612055 HCAPLUS
DOCUMENT NUMBER: 133:192980
TITLE: Preparation of triarylamines as intermediates for electrophotographic photoreceptors and charge-transfer agents
INVENTOR(S): Suzuka, Susumu; Anzai, Mitsutoshi; Suzuki, Nobuo
PATENT ASSIGNEE(S): Hodogaya Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| JP 2000239235 | A2 | 20000905 | JP 1999-370641 | | 19991227 <-- |
| PRIORITY APPLN. INFO.: | | | JP 1998-368390 | A | 19981225 |

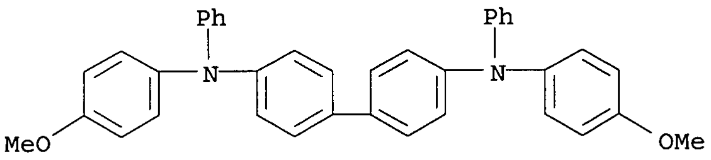
OTHER SOURCE(S): CASREACT 133:192980; MARPAT 133:192980

AB ABc [A = (un)substituted aromatic hydrocarbyl or heterocyclyl; B = residue of amine having primary and/or secondary (un)substituted aromatic hydrocarbon or heterocycle residue; c = a/b; a = 1-4; b = 1-8] are prepared by treatment of

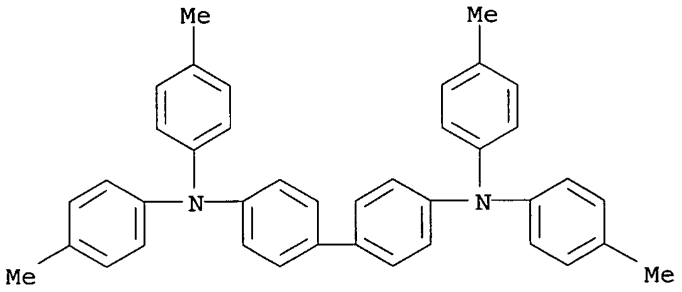
AXa (A, a = same as above; X = Br, I) with BHb (B, b = same as above) and M(HwSxOy)z (M = mono- to trivalent metal, ammonium; w = 0, 1; x = 1, 2; when x = 1, then y = 1-3; when x = 2, then y = 1-5; z = 1/2, 1, 3/2, 2, 3) in the presence of Cu-type catalysts and bases at 150-250° under N or inert gas. Ph2NH was treated with PhI, K2CO3, Cu power, and NaHSO3 at 200-205° for 12 h to give 91.0% Ph3N.

IT **20441-07-0P 76185-65-4P 79183-76-9P**
**106614-54-4P 126202-47-9P 134008-76-7P**
**167218-43-1P 289632-95-7P**
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation of triarylamines as intermediates for electrophotog. photoreceptors and charge-transfer agents by Ullmann reaction in presence of sulfites)

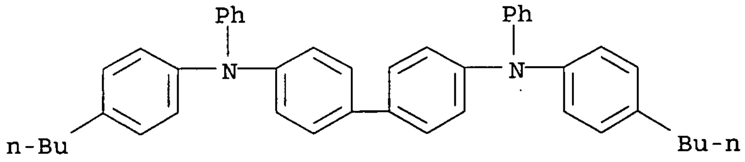
RN 20441-07-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-methoxyphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



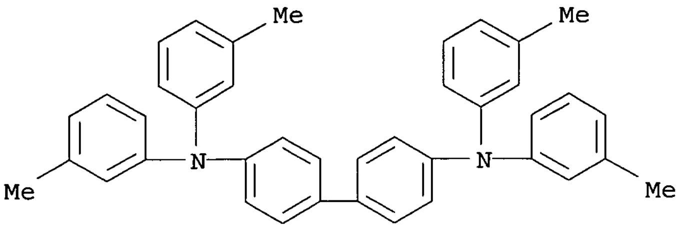
RN 76185-65-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



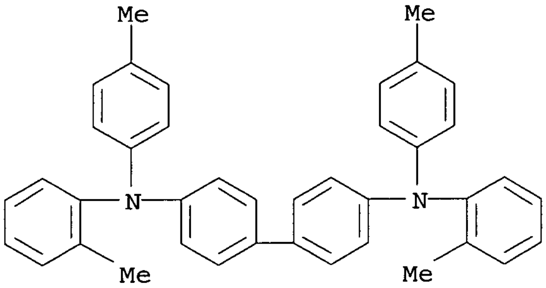
RN 79183-76-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-butylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



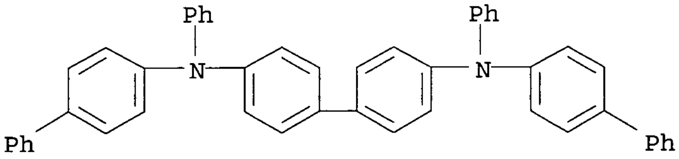
RN 106614-54-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(3-methylphenyl)- (9CI) (CA INDEX NAME)



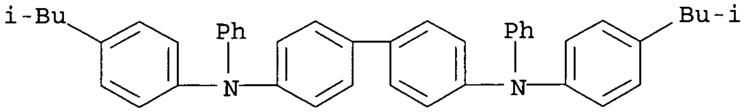
RN 126202-47-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(2-methylphenyl)-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



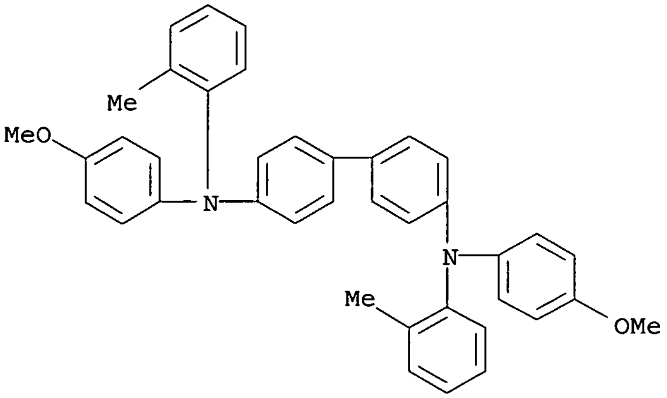
RN 134008-76-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 167218-43-1 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4-(2-methylpropyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 289632-95-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-methoxyphenyl)-N,N'-bis(2-methylphenyl)- (9CI) (CA INDEX NAME)

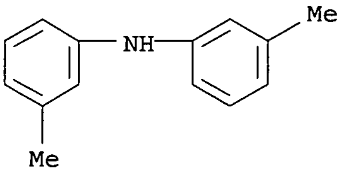


IT **122-39-4**, Diphenylamine, reactions **626-13-1**,
3,3'-Dimethyldiphenylamine **1208-86-2**, 4-Methoxydiphenylamine
**32228-99-2** **78888-05-8**, 4-Butyldiphenylamine
**167218-28-2**, 4-Isobutyldiphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of triarylamines as intermediates for electrophotog. photoreceptors and charge-transfer agents by Ullmann reaction in presence of sulfites)

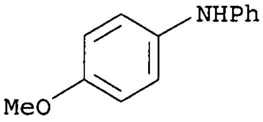
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph—NH—Ph

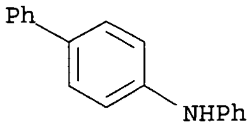
RN 626-13-1 HCAPLUS
CN Benzenamine, 3-methyl-N-(3-methylphenyl)- (9CI) (CA INDEX NAME)



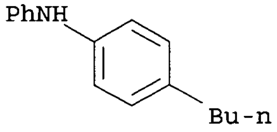
RN 1208-86-2 HCAPLUS
CN Benzenamine, 4-methoxy-N-phenyl- (9CI) (CA INDEX NAME)



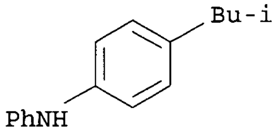
RN 32228-99-2 HCAPLUS
CN [1,1'-Biphenyl]-4-amine, N-phenyl- (9CI) (CA INDEX NAME)



RN 78888-05-8 HCAPLUS
CN Benzenamine, 4-butyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 167218-28-2 HCAPLUS
CN Benzenamine, 4-(2-methylpropyl)-N-phenyl- (9CI) (CA INDEX NAME)



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L34  ANSWER 14 OF 28  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:        2000:175881  HCAPLUS
DOCUMENT NUMBER:         132:214645
TITLE:                   Organic electroluminescence device and
                         phenylenediamine derivative
INVENTOR(S):             Kawamura, Hisayuki; Hosokawa, Chishio
PATENT ASSIGNEE(S):      Idemitsu Kosan Co., Ltd., Japan
SOURCE:                  PCT Int. Appl., 124 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                Japanese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
     WO 2000014174        A1    20000316    WO 1999-JP4794         19990903 <--
         W:  CN, KR, US
         RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE
     EP 1029909           A1    20000823    EP 1999-940653         19990903 <--
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI
     TW 222965            B1    20041101    TW 1999-88115517       19990908
     JP 2000309566        A2    20001107    JP 1999-256280         19990909 <--
     US 6541129           B1    20030401    US 2000-530597         20000509 <--
     US 2003143430        A1    20030731    US 2002-331645         20021231
PRIORITY APPLN. INFO.:                      JP 1998-255563      A  19980909
                                            JP 1999-47110       A  19990224
```

WO 1999-JP4794 W 19990903
US 2000-530597 A3 20000509

OTHER SOURCE(S): MARPAT 132:214645

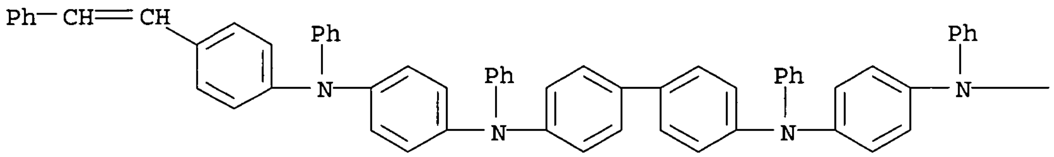
AB An organic electroluminescence device having a low driving voltage and a long life and a material having a small ionization potential and providing a large hole mobility are disclosed. The organic electroluminescence device comprises an organic electroluminescent layer containing a charge injection assisting material, and a hole transport region containing a phenylenediamine derivative expressed by a specific structural formula and having a hole mobility of 10-4 cm2/V·s or more, the both layer being sandwiched between a pair of electrodes.

IT **260550-91-2 260550-95-6**
RL: DEV (Device component use); USES (Uses)
(organic electroluminescence device containing phenylenediamine derivative)

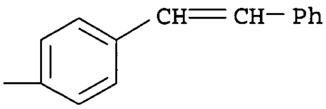
RN 260550-91-2 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl-N,N'-bis[4-[phenyl[4-(2-phenylethenyl)phenyl]amino]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

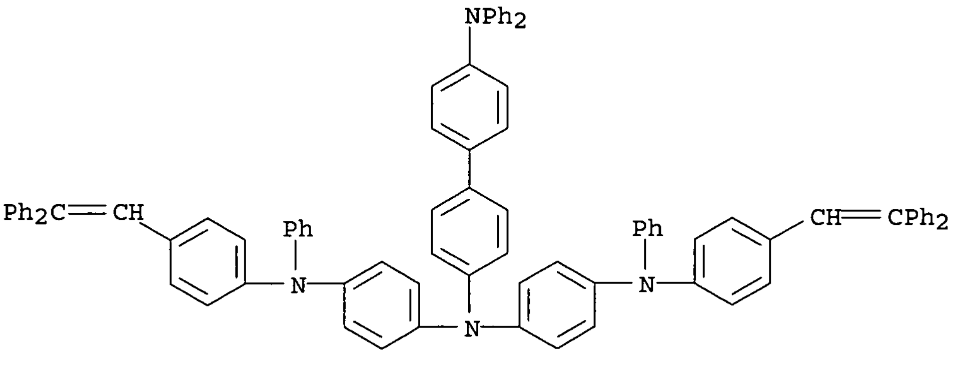


PAGE 1-B



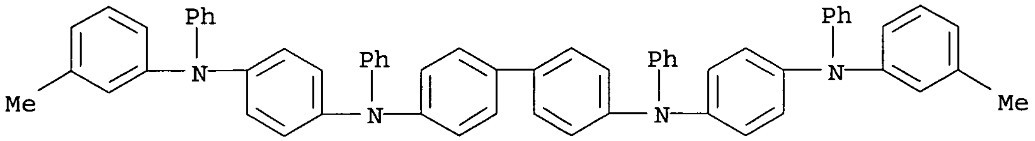
RN 260550-95-6 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N-bis[4-[[4-(2,2-diphenylethenyl)phenyl]phenylamino]phenyl]-N',N'-diphenyl- (9CI) (CA INDEX NAME)

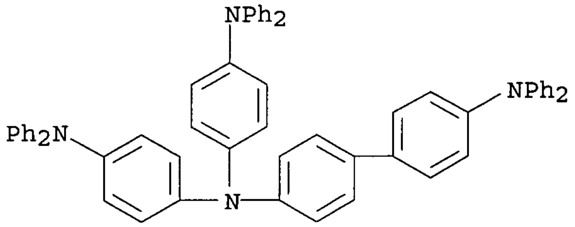


IT **260550-65-0P 260550-68-3P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

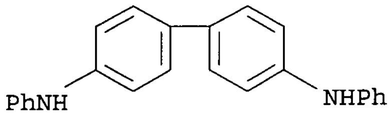
(organic electroluminescence device containing phenylenediamine derivative)
RN 260550-65-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4-[(3-methylphenyl)phenylamino]phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



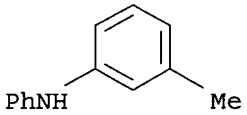
RN 260550-68-3 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N-bis[4-(diphenylamino)phenyl]-N',N'-diphenyl- (9CI) (CA INDEX NAME)



IT **531-91-9 1205-64-7**, (3-Methyl)diphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(organic electroluminescence device containing phenylenediamine derivative)
RN 531-91-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



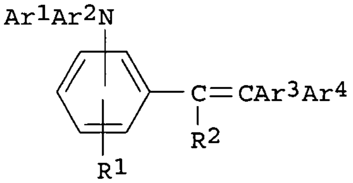
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:658553 HCAPLUS
DOCUMENT NUMBER: 131:293269
TITLE: Preparation of charge-transporting compound by Ullmann reaction and electrophotographic photoreceptor using the compound

INVENTOR(S): Nakata, Koichi; Kanamaru, Tetsuo; Kikuchi, Norihiro
PATENT ASSIGNEE(S): Canon K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 30 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 11282180 | A2 | 19991015 | JP 1998-86641 | 19980331 <-- |
| PRIORITY APPLN. INFO.: | | | JP 1998-86641 | 19980331 |

OTHER SOURCE(S): MARPAT 131:293269
GI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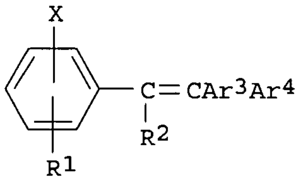
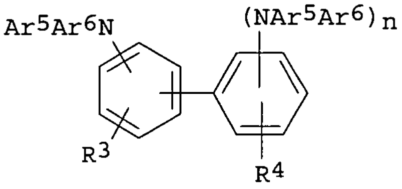
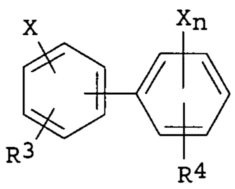

II


III

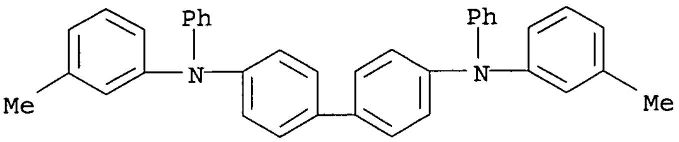

IV

AB Charge-transporting compds. of the general formula I [R1 = (substituted) alkyl, (substituted) aralkyl, (substituted) aryl, (substituted) alkoxy, (substituted) halomethyl, F, H; R2 = (substituted) alkyl, (substituted) aralkyl, (substituted) aryl, H; Ar1-2 = (substituted) aryl, H; Ar3, Ar4 = (substituted) alkyl, (substituted) aralkyl, (substituted) aryl, H; Ar3 and Ar4 may form a ring; X = halo] are synthesized by the Ullmann reaction using halo compds. II and the corresponding diarylamines Ar1Ar2NH in an amount of ≥3 times mol of the halo compds. Other types of charge-transporting compds. III [R3, R4 = (substituted) alkyl, (substituted) aryl, (substituted) alkoxy, (substituted) halomethyl, F, H; Ar5, Ar6 = (substituted) aryl; X = halo; n = 0 or 1] also may be synthesized by the Ullmann reaction using halo compds. IV and the corresponding diarylamines Ar5Ar6NH in an amount of ≥3 times and ≥4 times mol of the halo compds. for the compds. III (n = 0) and (n = 1), resp. An electrophotog. photoreceptor is also claimed, possessing a charge-transporting layer containing the charge-transporting compound The charge-transporting compds. with low impurities such as byproducts showing bad effects on electrophotog. properties can be synthesized readily in good yield and high purity.

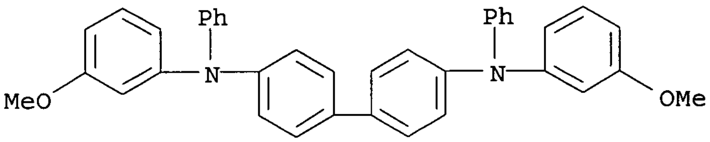
IT **65181-78-4P 105465-24-5P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of electrophotog. charge-transporting agent by Ullmann reaction of diarylamine and halo compound)

RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 105465-24-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methoxyphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

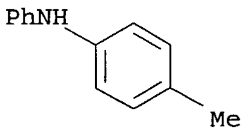


IT **122-39-4**, Diphenylamine, reactions **620-84-8**, 4-Methyldiphenylamine **1205-64-7**, 3-Methyldiphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of electrophotog. charge-transporting agent by Ullmann reaction of diarylamine and halo compound)

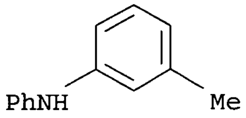
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph— NH— Ph

RN 620-84-8 HCAPLUS
CN Benzenamine, 4-methyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



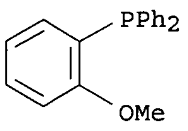
L34 ANSWER 16 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:488475 HCAPLUS
DOCUMENT NUMBER: 131:272211

TITLE: **Palladium**-Catalyzed Synthesis of Pure, Regiodefined Polymeric Triarylamines
AUTHOR(S): Goodson, Felix E.; Hauck, Sheila I.; Hartwig, John F.
CORPORATE SOURCE: Department of Chemistry, Yale University, New Haven, CT, 06520-8107, USA
SOURCE: Journal of the American Chemical Society (**1999**), 121(33), 7527-7539
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

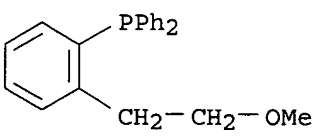
AB Triarylamine polymers were prepared by **palladium**-catalyzed amination of aryl halides, and the electrochem. and magnetic properties of these materials were studied. Through a careful evaluation of the catalytic and polymer chemical involved in this process, triarylamine polymers that are exclusively linear and free of phosphorus impurity in the polymer chain have been prepared To suppress mol. weight-limiting side reactions from **palladium**-catalyzed poly(N-arylaniline) polymns., a number of phosphines were screened in reactions of small mols. to form triarylamines. Of these phosphines, tris(o-methoxymethylphenyl) **phosphine** and tri(tert-butyl)**phosphine** led to quant. amination without **ligand** arylation, aryl bromide hydrodehalogenation, or exchange of **phosphine** aryl groups with the aryl bromide. When these phosphines were used in polymns., significant improvements in mol. wts. were observed, but an addnl. mol. weight limiting side reaction, the formation of cyclic oligomers, was not affected. Strategies to minimize cyclizations that compete with chain growth were explored, including the use of oligomeric monomers that greatly reduced the formation of cyclic oligomers. A chromatog. method completely removed low-mol.-weight cyclic oligomers. A number of poly(N-arylaniline) derivs. with Mw values as high as 105 g/mol were synthesized by using the optimized **palladium**-catalyzed method, and the electronic and magnetic properties of these materials were investigated by cyclic voltammetry, magnetic susceptibility, and EPR spectroscopy.

IT **53111-20-9 68718-81-0**
RL: CAT (Catalyst use); USES (Uses)
(catalysts; amination of aryl bromides in presence of **palladium** and)

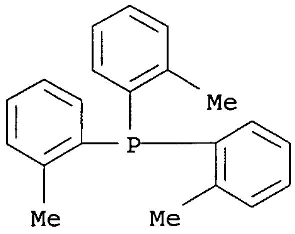
RN 53111-20-9 HCAPLUS
CN Phosphine, (2-methoxyphenyl)diphenyl- (9CI) (CA INDEX NAME)



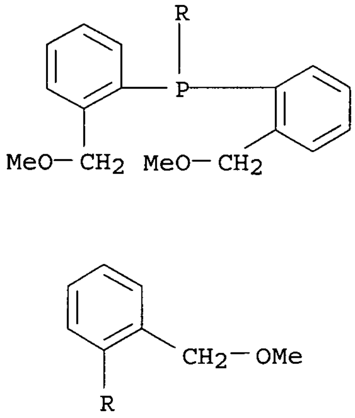
RN 68718-81-0 HCAPLUS
CN Phosphine, [2-(2-methoxyethyl)phenyl]diphenyl- (9CI) (CA INDEX NAME)



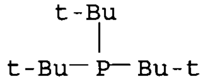
IT **6163-58-2 6962-89-6 13716-12-6**
RL: CAT (Catalyst use); USES (Uses)
(catalysts; polymerization of aryl bromides with diamines in presence of **palladium** catalyst and)
RN 6163-58-2 HCAPLUS
CN Phosphine, tris(2-methylphenyl)- (9CI) (CA INDEX NAME)



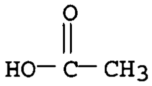
RN 6962-89-6 HCAPLUS
CN Phosphine, tris[2-(methoxymethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 13716-12-6 HCAPLUS
CN Phosphine, tris(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)


$$\text{t-Bu}_3\text{P}$$

IT **3375-31-3**, **Palladium** diacetate
RL: CAT (Catalyst use); USES (Uses)
(catalysts; polymerization of aryl bromides with diamines in presence of **palladium-phosphine** catalyst)
RN 3375-31-3 HCAPLUS
CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)



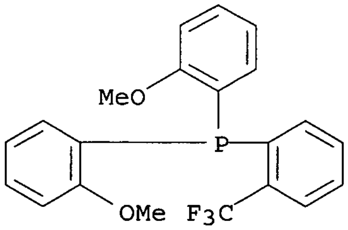
$$\mathrm{HO-\overset{O}{\overset{\|}{C}}-CH_3}$$

●1/2 Pd(II)

IT **223250-50-8P 223250-60-0P 245442-70-0P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(preparation and characterization of)

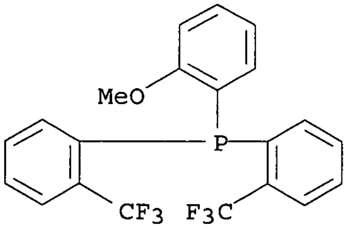
RN 223250-50-8 HCAPLUS

CN Phosphine, bis(2-methoxyphenyl)[2-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



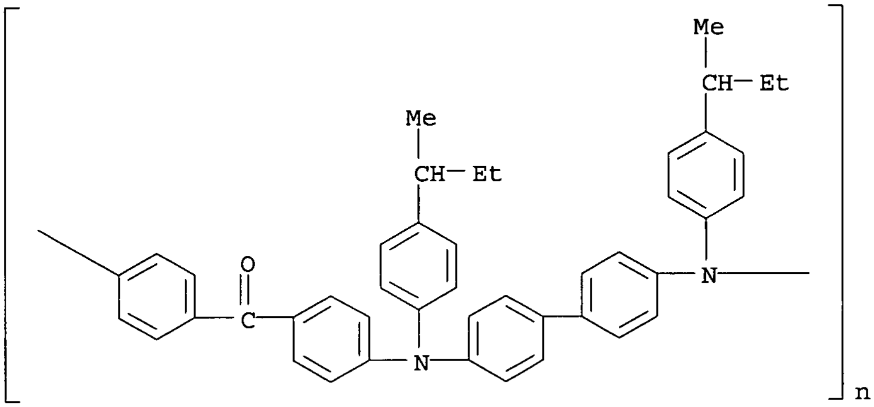
RN 223250-60-0 HCAPLUS

CN Phosphine, (2-methoxyphenyl)bis[2-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)

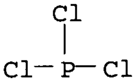


RN 245442-70-0 HCAPLUS

CN Poly[[[4-(1-methylpropyl)phenyl]imino][1,1'-biphenyl]-4,4'-diyl[[4-(1-methylpropyl)phenyl]imino]-1,4-phenylenecarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)



IT 7719-12-2, Phosphorus trichloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with Grignard solution of bromobenzonitrile)
RN 7719-12-2 HCAPLUS
CN Phosphorous trichloride (9CI) (CA INDEX NAME)



REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:407102 HCAPLUS
DOCUMENT NUMBER: 131:73794
TITLE: Purification of photofunctional hydrolyzable silicon compounds using solid acids
INVENTOR(S): Yamada, Wataru; Nukada, Katsumi; Ishii, Rie
PATENT ASSIGNEE(S): Fuji Xerox Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 11171891 | A2 | 19990629 | JP 1997-337294 | 19971208 <-- |
| PRIORITY APPLN. INFO.: | | | JP 1997-337294 | 19971208 |

OTHER SOURCE(S): MARPAT 131:73794

AB Hydrolyzable group-containing Si compds. containing basic impurities are treated with solid acidic substances for removal of the impurities. The purified Si compds. are useful for manufacture of electronic devices, e.g. electrophotog. devices (no data). PPh3 was quaternized by I(CH2)3Si(OMe)3 and treated with NaH followed by 3,3'-dimethyl-N,N'-bis(4-formylphenyl)-N,N'-bis(3,4-dimethylphenyl)-1,1'-biphenyl-4,4'-diamine in DMF at room temperature for 2 h. The reaction product was purified with a silica gel column

(Wakogel C 200) to give 50% Ar1Ar2NAr5NAr3Ar4 [Ar1 = Ar4 = C6H3Me2-3,4,
Ar2 = Ar3 = p-C6H4CH:CH(CH2)2Si(OMe)3, Ar5 = 3,3'-dimethyl-4,4'-
biphenylene].

IT **1344-28-1**, Aluminum oxide (Al2O3), uses
RL: NUU (Other use, unclassified); USES (Uses)
(acidic, activated; purification of photofunctional hydrolyzable silicon
compds. using solid acids)

RN 1344-28-1 HCAPLUS

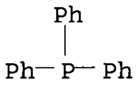
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **603-35-0**, **Triphenylphosphine**, reactions
**214332-10-2**, 3,3'-Dimethyl-N,N'-bis(4-formylphenyl)-N,N'-bis(3,4-dimethylphenyl)-1,1'-biphenyl-4,4'-diamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(purification of photofunctional hydrolyzable silicon compds. prepared from)

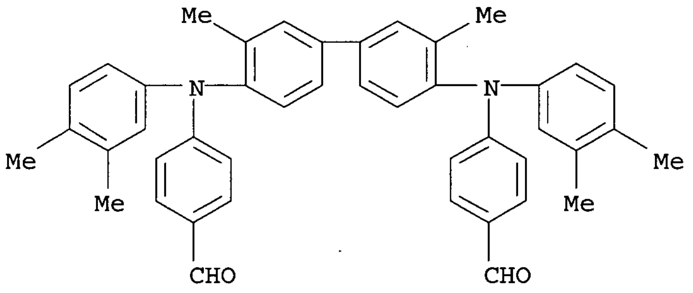
RN 603-35-0 HCAPLUS

CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)


$\mathrm{Ph{-}P(Ph){-}Ph}$

RN 214332-10-2 HCAPLUS

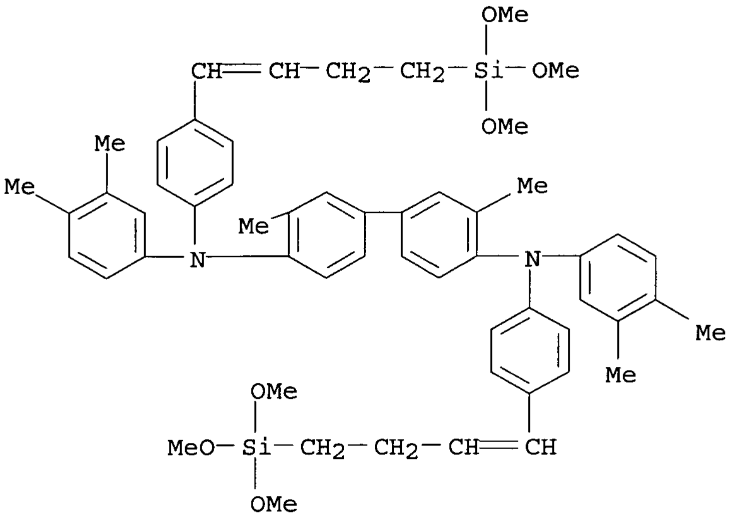
CN Benzaldehyde, 4,4'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis[(3,4-dimethylphenyl)imino]]bis- (9CI) (CA INDEX NAME)



IT **214332-09-9P**
RL: PUR (Purification or recovery); SPN (Synthetic preparation); TEM
(Technical or engineered material use); **PREP (Preparation)**; USES
(Uses)
(purification of photofunctional hydrolyzable silicon compds. using solid
acids)

RN 214332-09-9 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[4-(trimethoxysilyl)-1-butenyl]phenyl]- (9CI) (CA INDEX NAME)



L34 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:113225 HCAPLUS

DOCUMENT NUMBER: 130:202877

TITLE: Electrophotographic photoconductor with excellent durability

INVENTOR(S): Yamada, Wataru; Nukada, Katsumi; Iwasaki, Masahiro

PATENT ASSIGNEE(S): Fuji Xerox Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 41 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

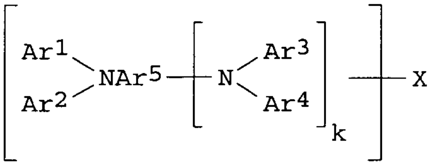
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| JP 11038656 | A2 | 19990212 | JP 1997-190236 | | 19970715 | <-- |
| JP 3264218 | B2 | 20020311 | | | | |
| PRIORITY APPLN. INFO.: | | | JP 1996-187932 | A | 19960717 | |
| | | | JP 1997-129039 | A | 19970519 | |

GI



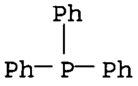
I

AB The title electrophotog. photoconductor contains a F-containing silane coupling compound and at least 1 specific silane compound represented by a general formula I [Ar1-4 = aryl; Ar5 = aryl, arylene; X = -Y-SiR13-a(OR2)a; R1 = H, alkyl, aryl; R2 = H, alkyl, trialkylsilyl; a = 1-3; Y = divalent group; k = 0, 1] in a layer, preferable in the outermost charge transport layer. The compound is cured by an acidic catalysis. The electrophotog. photoconductor contains halogenated gallium phthalocyanine, halogenated tin phthalocyanine, hydroxygallium phthalocyanine and/or oxytitanium phthalocyanine.

IT **102726-88-5**, **Palladium** carbide
RL: CAT (Catalyst use); USES (Uses)
(in preparation of silane compound for the outermost charge transport layer of the electrophotog. photoconductor)
RN 102726-88-5 HCAPLUS
CN Palladium carbide (9CI) (CA INDEX NAME)

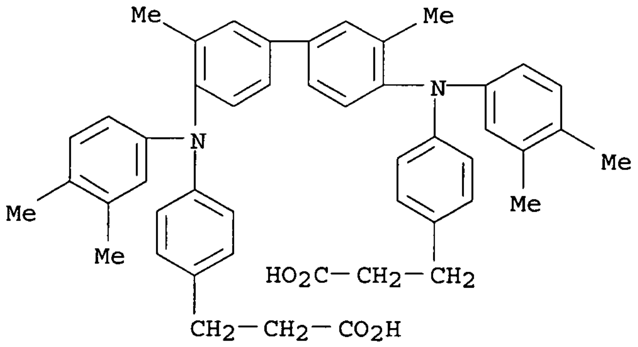
| Component | Ratio | Component Registry Number |
|---|---|---|
| C | x | 7440-44-0 |
| Pd | x | 7440-05-3 |

IT **603-35-0**, **Triphenylphosphine**, reactions
**184583-46-8** **214332-10-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of silane compound for the outermost charge transport layer of the electrophotog. photoconductor)
RN 603-35-0 HCAPLUS
CN Phosphine, triphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

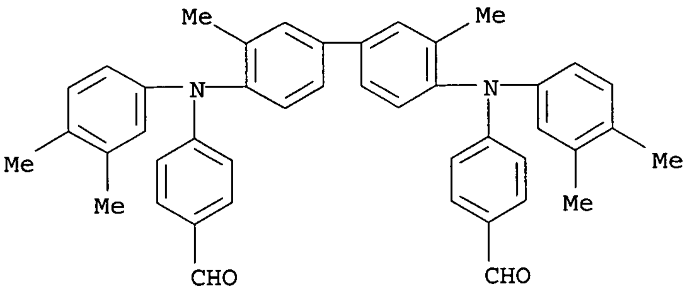


$\mathrm{Ph-\overset{\overset{Ph}{|}}{P}-Ph}$

RN 184583-46-8 HCAPLUS
CN Benzenepropanoic acid, 4,4'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis[(3,4-dimethylphenyl)imino]]bis- (9CI) (CA INDEX NAME)



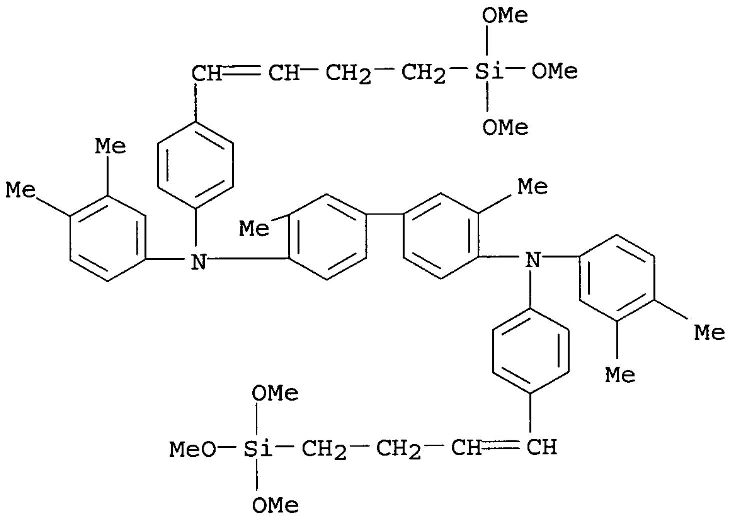
RN 214332-10-2 HCAPLUS
CN Benzaldehyde, 4,4'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis[(3,4-dimethylphenyl)imino]]bis- (9CI) (CA INDEX NAME)



IT **214332-09-9P 220776-94-3P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(in preparation of silane compound for the outermost charge transport layer of
the electrophotog. photoconductor)

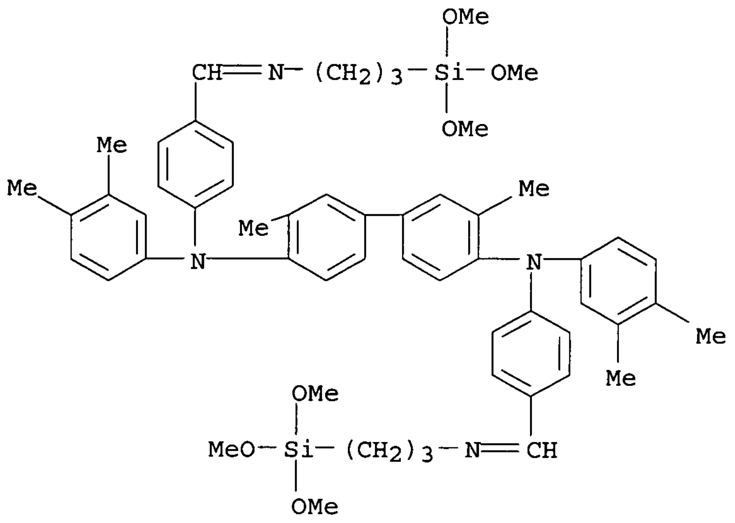
RN 214332-09-9 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[4-(trimethoxysilyl)-1-butenyl]phenyl]- (9CI) (CA INDEX NAME)



RN 220776-94-3 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[[[3-(trimethoxysilyl)propyl]imino]methyl]phenyl]- (9CI) (CA INDEX NAME)



IT **214332-15-7 214332-16-8 214332-17-9**
**220776-93-2 220776-96-5 220776-98-7**
RL: DEV (Device component use); USES (Uses)
(silane compound in the outermost charge transport layer of the electrophotog. photoconductor)

RN 214332-15-7 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[2-[4-(trimethoxysilyl)phenyl]ethenyl]phenyl]- (9CI) (CA INDEX NAME)

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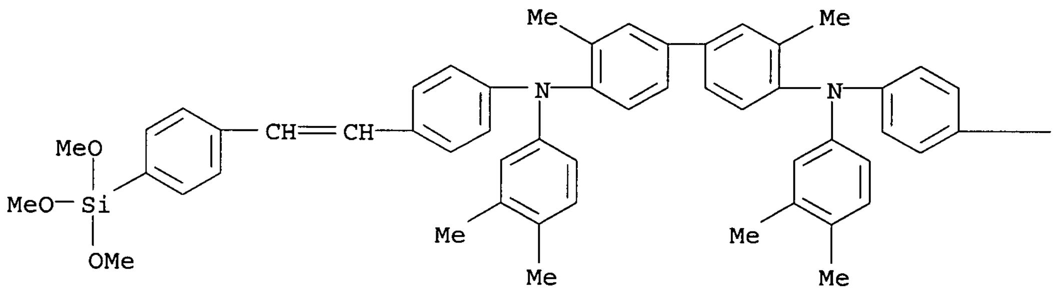
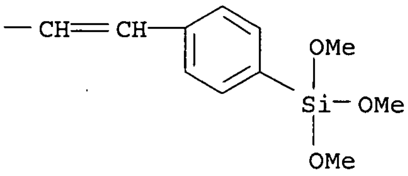
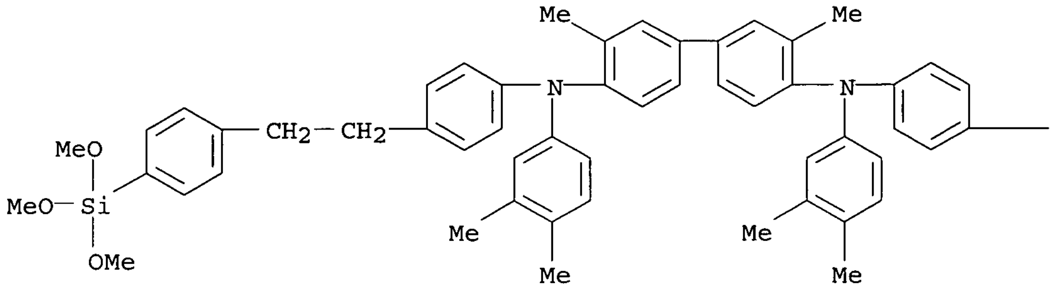


PAGE 1-B



RN 214332-16-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[2-[4-(trimethoxysilyl)phenyl]ethyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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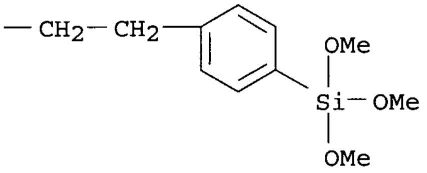
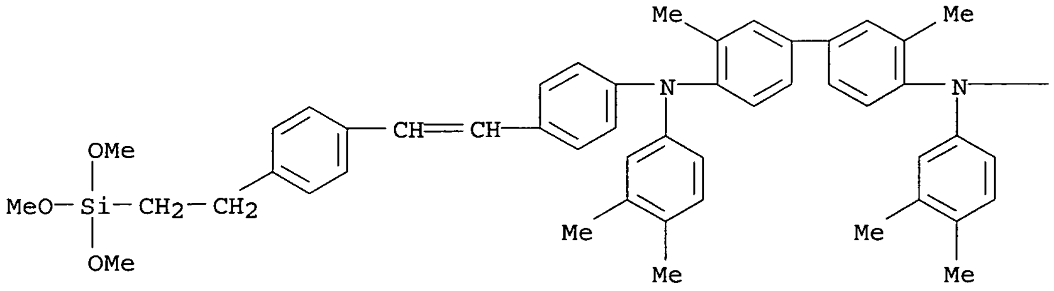


RN 214332-17-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[2-[4-[2-(trimethoxysilyl)ethyl]phenyl]ethenyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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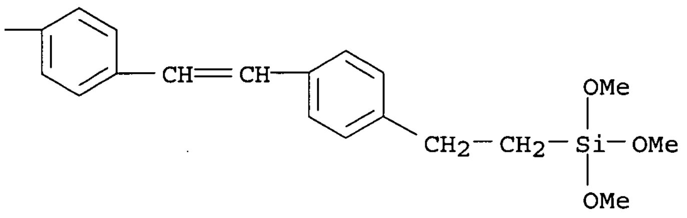
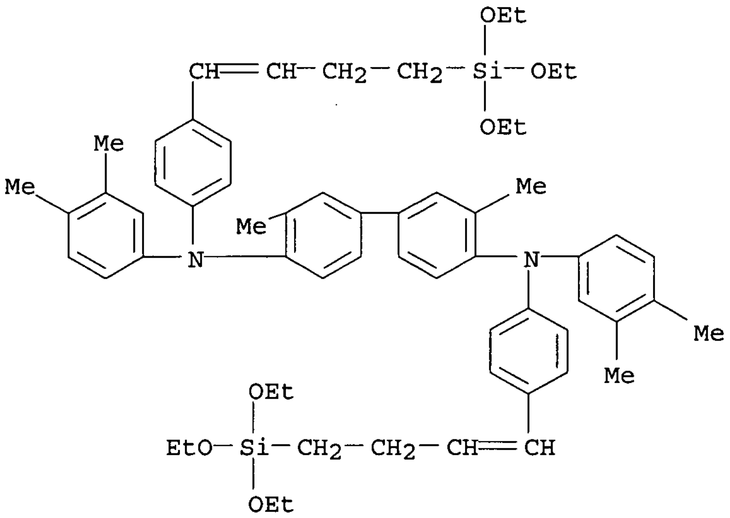
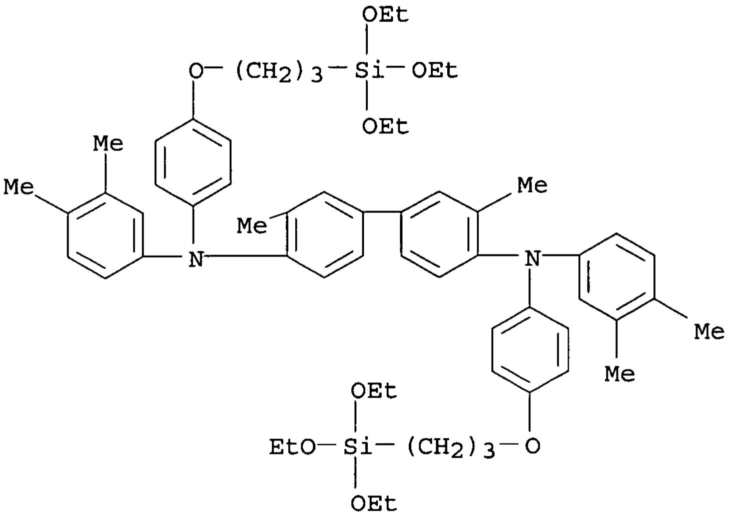


RN 220776-93-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[4-(triethoxysilyl)-1-butenyl]phenyl]- (9CI) (CA INDEX NAME)

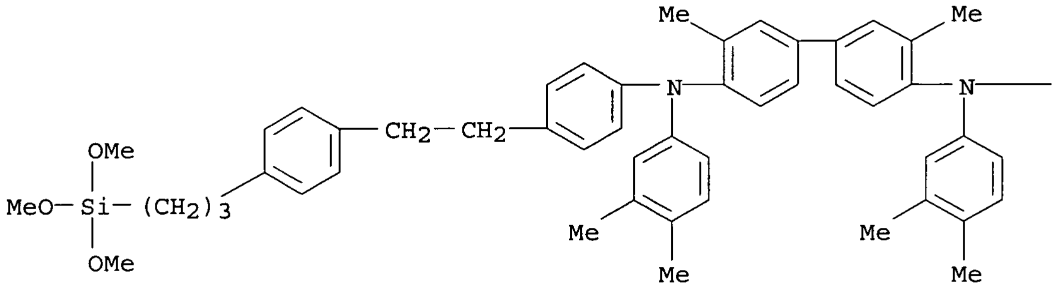


RN 220776-96-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[3-(triethoxysilyl)propoxy]phenyl]- (9CI) (CA INDEX NAME)



RN 220776-98-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[2-[4-[3-(trimethoxysilyl)propyl]phenyl]ethyl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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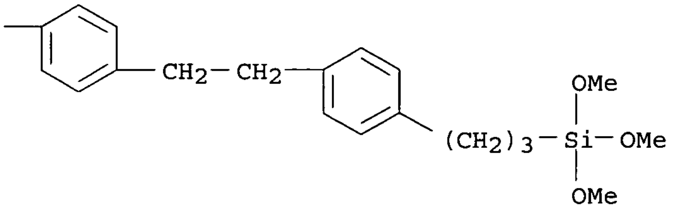
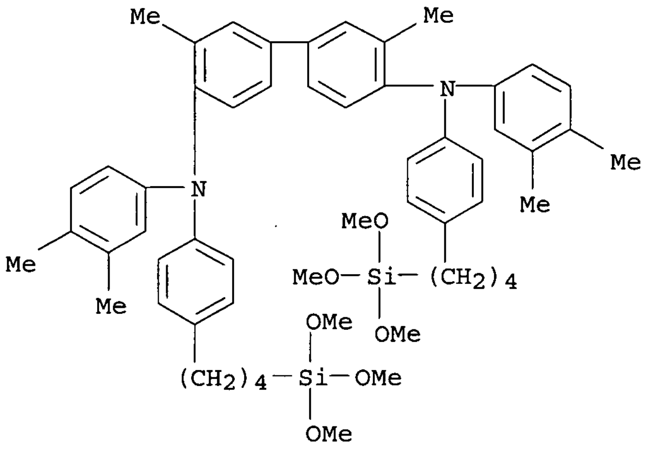
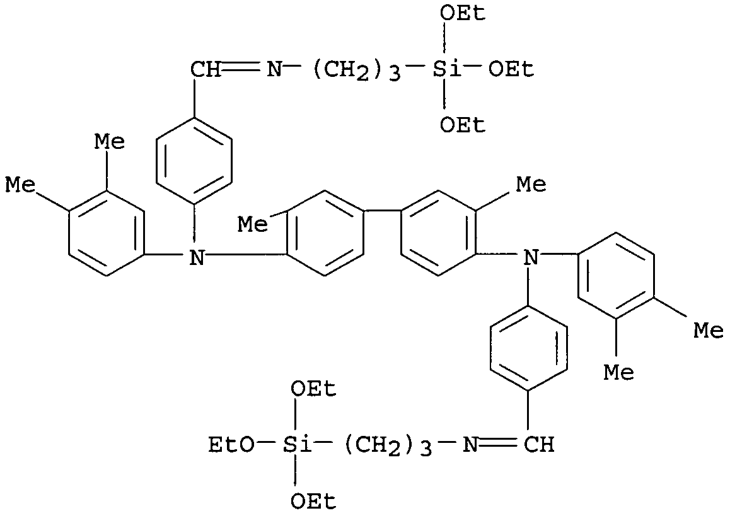


IT **214332-11-3P 220776-95-4P 220777-00-4P**
RL: DEV (Device component use); SPN (Synthetic preparation); **PREP (Preparation)**; USES (Uses)
(silane compound in the outermost charge transport layer of the electrophotog. photoconductor)

RN 214332-11-3 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[4-(trimethoxysilyl)butyl]phenyl]- (9CI) (CA INDEX NAME)

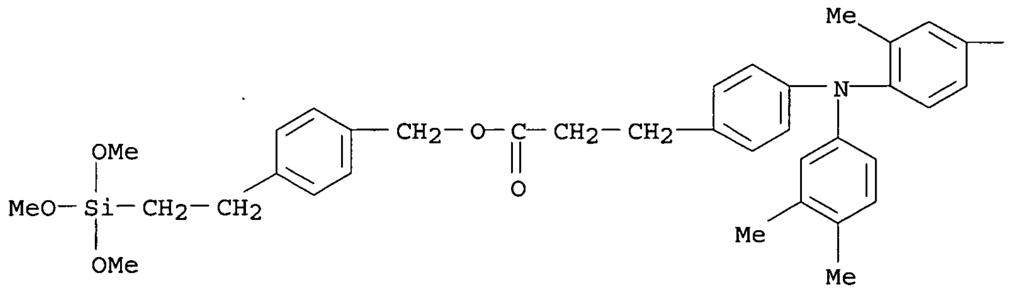


RN 220776-95-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3,4-dimethylphenyl)-3,3'-dimethyl-N,N'-bis[4-[[[3-(triethoxysilyl)propyl]imino]methyl]phenyl]- (9CI) (CA INDEX NAME)



RN 220777-00-4 HCAPLUS
CN Benzenepropanoic acid, 4,4'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis[(3,4-dimethylphenyl)imino]]bis-, bis[[4-[2-(trimethoxysilyl)ethyl]phenyl]methyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



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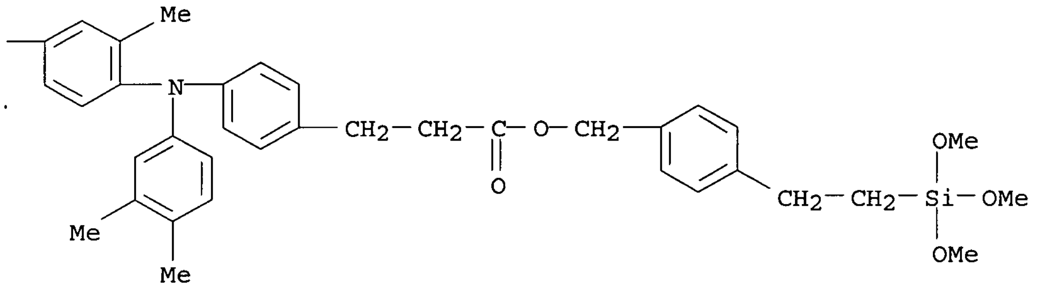


L34 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:499294 HCAPLUS
DOCUMENT NUMBER: 129:216375
TITLE: Unsymmetrical Triaryldiamines as Thermally Stable Hole Transporting Layers for Organic Light-Emitting Devices
AUTHOR(S): Koene, Bryan E.; Loy, Douglas E.; Thompson, Mark E.
CORPORATE SOURCE: Department of Chemistry, University of Southern California, Los Angeles, CA, 90089, USA
SOURCE: Chemistry of Materials (**1998**), 10(8), 2235-2250
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

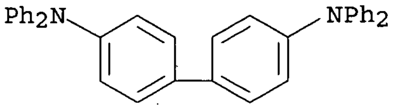
AB The synthesis of a series of unsym. triaryldiamines has provided a number of materials with a wide range of thermal, electrochem., and spectroscopic properties. The asym. materials described herein have two different diarylamine groups bound to a 1,4-phenylene or 4,4'-biphenylene core, i.e., Ar1Ar2N-C6H4-NAr1'Ar3 or Ar1Ar2N-biphenyl-NAr1'Ar3, resp. The diarylamines studied include diphenylamine, phenyl-m-tolylamine, naphthylphenylamine, iminostilbene, iminodibenzyl, and carbazole. These materials were prepared by copper- and palladium-catalyzed coupling of aryl halides and diarylamines. The asymmetry inherent in these compds. prevents these low mol. mass compds. from crystallizing, thus yielding higher thermal stability over that of the sym. derivs. In all cases, the unsym. diamines form stable glasses, with glass transition temps. up to 125°. HOMO levels for these materials, estimated by cyclic voltammetry, show a broad range of values, with oxidation potentials both lower and higher than those of common hole transport materials used in

organic light emitting devices.

IT **15546-43-7P 65181-78-4P 201802-64-4P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(unsym. triaryldiamines as thermally stable hole transporting layers for organic light-emitting devices)

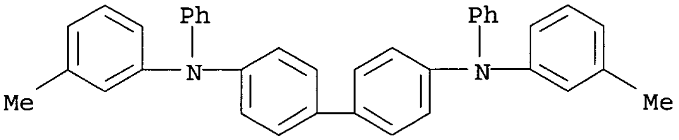
RN 15546-43-7 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



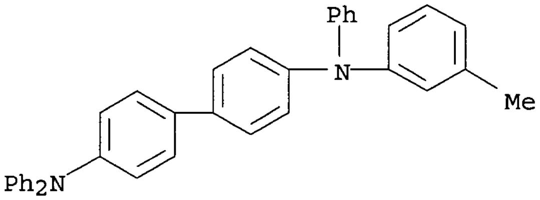
RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 201802-64-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N,N',N'-triphenyl- (9CI) (CA INDEX NAME)



IT **122-39-4**, Diphenylamine, reactions **1205-64-7**, 3-Methyldiphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(unsym. triaryldiamines as thermally stable hole transporting layers for organic light-emitting devices)

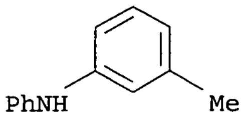
RN 122-39-4 HCAPLUS

CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph— NH— Ph

RN 1205-64-7 HCAPLUS

CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:253128 HCAPLUS
DOCUMENT NUMBER: 128:315230
TITLE: Electroluminescent device using polynuclear arylamine
INVENTOR(S): Hu, Nan-Xing; Ong, Beng S.; Xie, Shuang; Popovic, Zoran D.; Hor, Ah-Mee
PATENT ASSIGNEE(S): Xerox Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| JP 10106750 | A2 | 19980424 | JP 1997-229820 | | 19970826 <-- |
| US 5763110 | A | 19980609 | US 1996-707162 | | 19960903 <-- |
| PRIORITY APPLN. INFO.: | | | US 1996-707162 | A | 19960903 |

OTHER SOURCE(S): MARPAT 128:315230

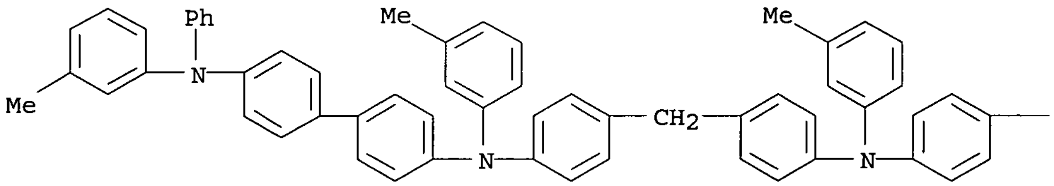
AB The EL device uses a polynuclear arylamne R1R2NA1N(R3)QN(R4)A2R5R6 (R1-R6 = aryl; A1, A2 = biaryl; Q = hydrocarbon group) as a means of pos. hole implanting. The device shows improved heat and operation stability.

IT **206352-80-9P 206352-81-0P 206352-82-1P 206352-83-2P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electroluminescent device using polynuclear arylamine as a means of pos. hole implanting)

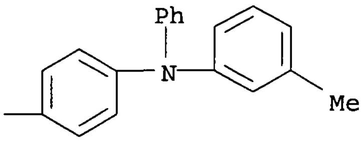
RN 206352-80-9 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-(methylenedi-4,1-phenylene)bis[N,N'-bis(3-methylphenyl)-N'-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

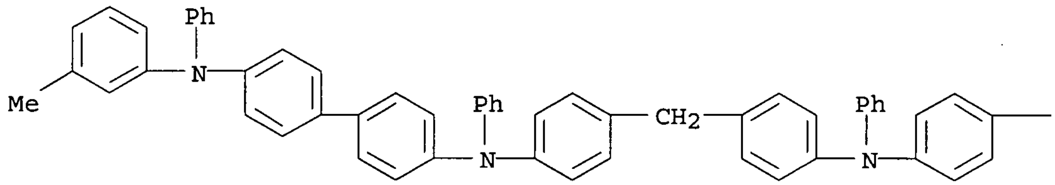


PAGE 1-B

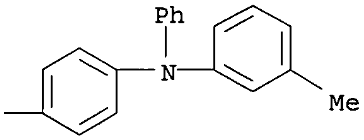


RN 206352-81-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-(methylenedi-4,1-phenylene)bis[N'-(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

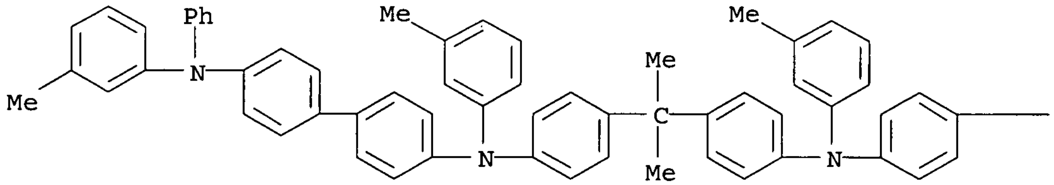


PAGE 1-B

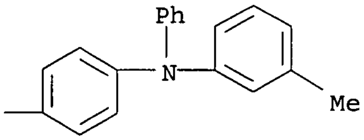


RN 206352-82-1 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-[(1-methylethylidene)di-4,1-phenylene]bis[N,N'-bis(3-methylphenyl)-N'-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

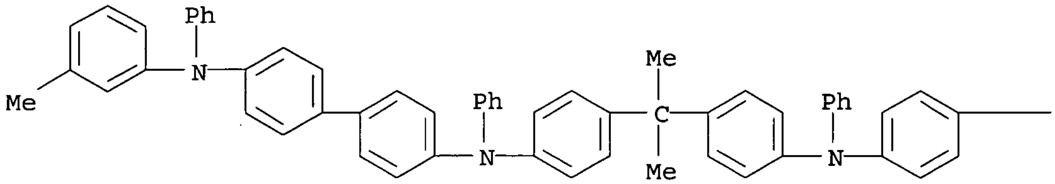


PAGE 1-B

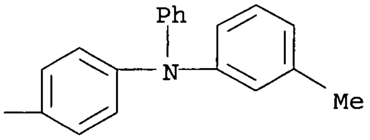


RN 206352-83-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N''-[(1-methylethylidene)di-4,1-phenylene]bis[N'-(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

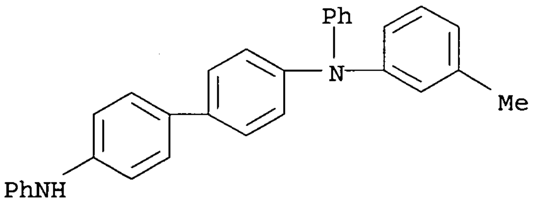
PAGE 1-A



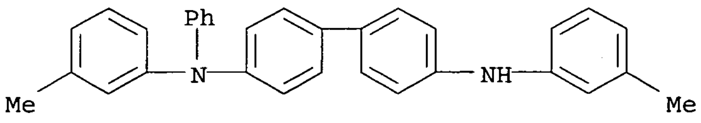
PAGE 1-B



IT **184104-81-2 204327-06-0**
RL: RCT (Reactant); RACT (Reactant or reagent)
(electroluminescent device using polynuclear arylamine as a means of pos. hole implanting from)
RN 184104-81-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 204327-06-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 21 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:175870 HCAPLUS
DOCUMENT NUMBER: 128:223711
TITLE: Electroluminescent devices
INVENTOR(S): Hu, Nan-xing; Ong, Beng S.; Xie, Shuang; Popovic,

Zoran D.; Hor, Ah-mee
PATENT ASSIGNEE(S): Xerox Corp., USA
SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

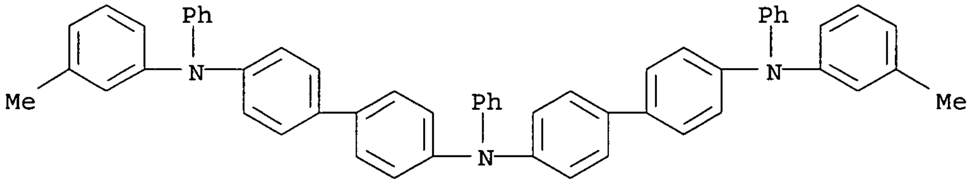
| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE |
|---|---|---|---|---|---|
| EP 827367 | A2 | 19980304 | EP 1997-306578 | | 19970828 <-- |
| EP 827367 | A3 | 19980729 | | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | | |
| JP 10101625 | A2 | 19980421 | JP 1997-229821 | | 19970826 <-- |
| PRIORITY APPLN. INFO.: | | | US 1996-707260 | A | 19960903 |

OTHER SOURCE(S): MARPAT 128:223711

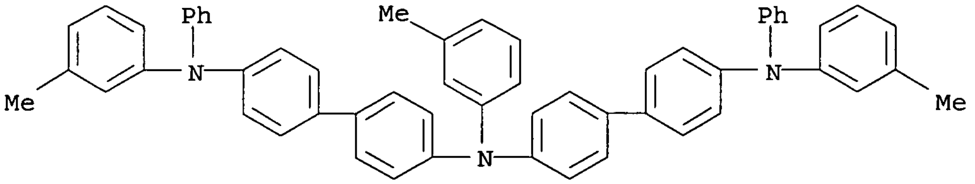
AB Electroluminescent devices are described which employ polynuclear arylamines described by the general formula R1(R2)N-A1-N(R3)-A2-N(R4)R5 (I; R1-5 = aryls, and A1 and A2 = biaryls). Methods for preparing the polynuclear arylamines of formula I using an Ullmann condensation reaction are also described.

IT **204326-94-3P 204326-95-4P 204326-96-5P**
**204326-97-6P 204326-98-7P 204326-99-8P**
**204327-00-4P 204327-01-5P 204327-02-6P**
**204327-03-7P 204327-04-8P**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(electroluminescent devices employing polynuclear arylamines)

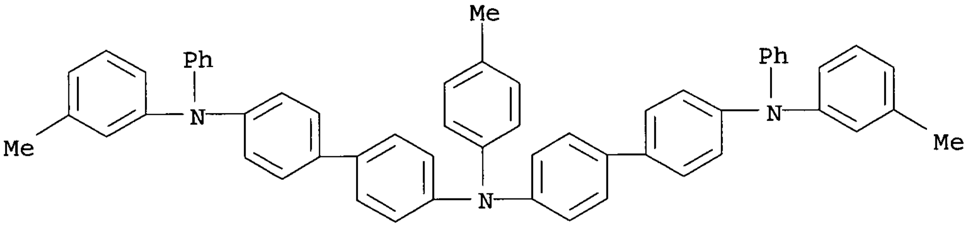
RN 204326-94-3 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N'-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



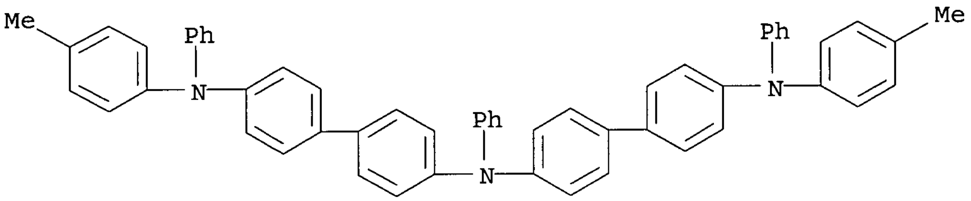
RN 204326-95-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-phenyl- (9CI) (CA INDEX NAME)



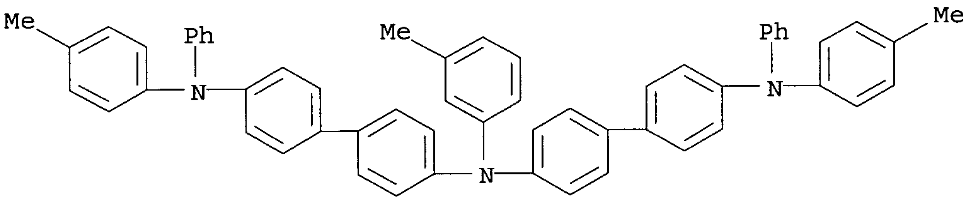
RN 204326-96-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N'-(4-methylphenyl)-N'-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N-phenyl- (9CI) (CA INDEX NAME)



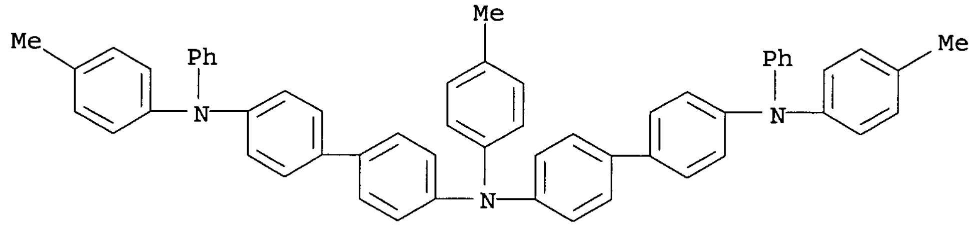
RN 204326-97-6 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-methylphenyl)-N'-[4'-[(4-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



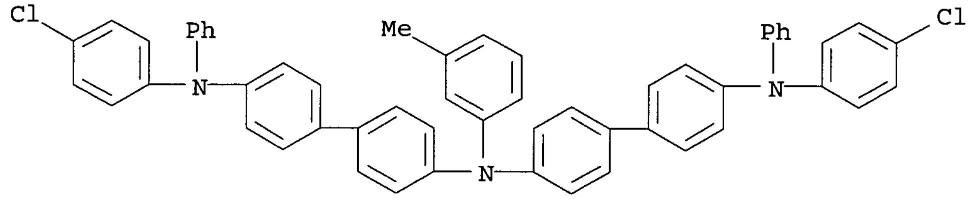
RN 204326-98-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N'-(4-methylphenyl)-N-[4'-[(4-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-phenyl- (9CI) (CA INDEX NAME)



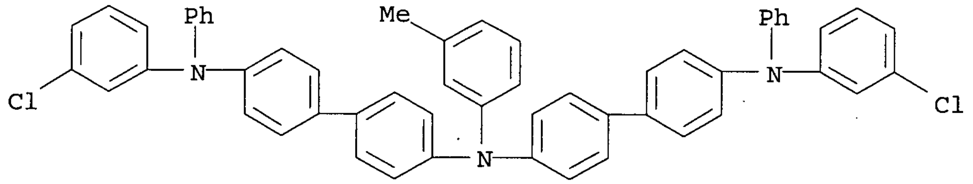
RN 204326-99-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-methylphenyl)-N-[4'-[(4-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-phenyl- (9CI) (CA INDEX NAME)



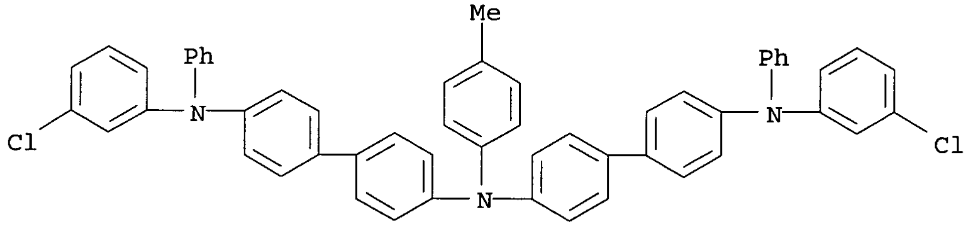
RN 204327-00-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-chlorophenyl)-N'-[4'-[(4-chlorophenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)



RN 204327-01-5 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-chlorophenyl)-N'-[4'-[(3-chlorophenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

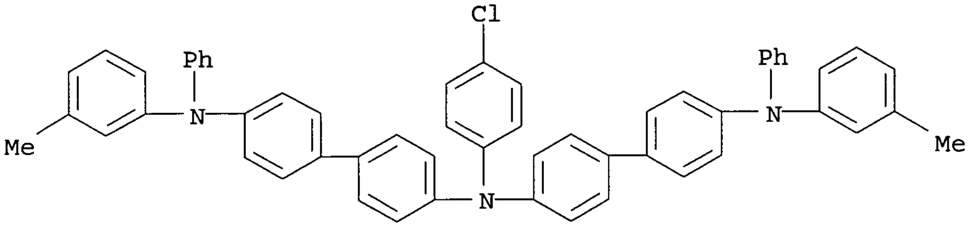


RN 204327-02-6 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-chlorophenyl)-N'-[4'-[(3-chlorophenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-(4-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

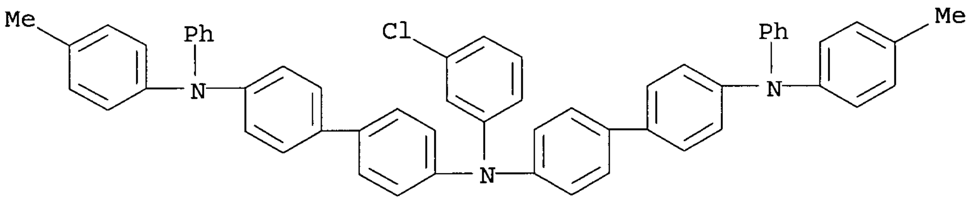


RN 204327-03-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-chlorophenyl)-N'-(3-methylphenyl)-N-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-phenyl- (9CI) (CA

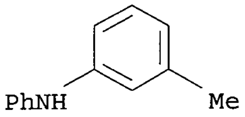
INDEX NAME)



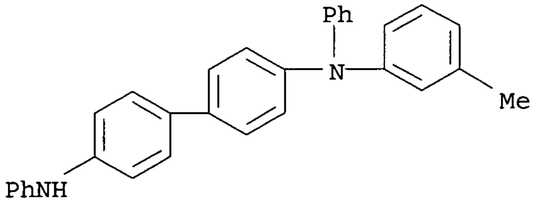
RN 204327-04-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-chlorophenyl)-N'-(4-methylphenyl)-N-[4'-[(4-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-phenyl- (9CI) (CA INDEX NAME)



IT **1205-64-7**, 3-Methyldiphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(electroluminescent devices employing polynuclear arylamines)
RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)

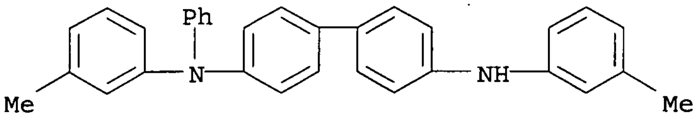


IT **184104-81-2P 204327-06-0P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(electroluminescent devices employing polynuclear arylamines)
RN 184104-81-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 204327-06-0 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N-phenyl- (9CI)
(CA INDEX NAME)



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L34  ANSWER 22 OF 28  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:         1998:59336  HCAPLUS
DOCUMENT NUMBER:          128:127812
TITLE:                    Preparation of aromatic tertiary amines and their
                          intermediates as materials for organic
                          electroluminescent, electrophotographic, and optical
                          recording materials
INVENTOR(S):              Sato, Tadahisa
PATENT ASSIGNEE(S):       Fuji Photo Film Co., Ltd., Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 44 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
     ---------------     ----    --------    --------------------   --------
     JP 10017531          A2     19980120    JP 1996-176226         19960705 <--
PRIORITY APPLN. INFO.:                       JP 1996-176226         19960705
OTHER SOURCE(S):          CASREACT 128:127812; MARPAT 128:127812
GI
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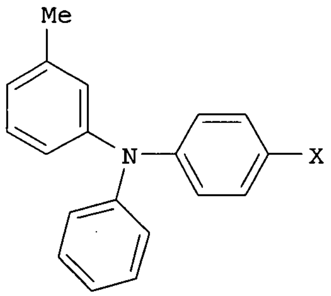
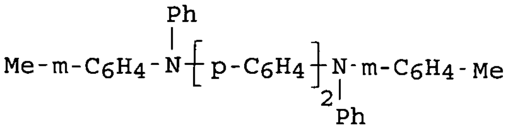


I



$$\mathrm{Me{-}m{-}C_6H_4{-}}\overset{\mathrm{Ph}}{\mathrm{N}}\left[\mathrm{p{-}C_6H_4}\right]_2\underset{\mathrm{Ph}}{\mathrm{N}}\mathrm{{-}m{-}C_6H_4{-}Me}$$

II

AB Compds. having ≥2 aromatic tertiary amines and ≥1 arom
hydrocarbon ring assemblies are prepared by cross-coupling of C in aromatic

groups using Pd catalysts. Iodide I (X = iodo) (preparation given) was treated with aromatic boronic acid I [X = B(OH)2] (preparation given) in the presence of (AcO)2Pd, (2-MeC6H4)3P and Et3N in DMF at 100° for 2 h to give 75% aromatic tertiary amine II.

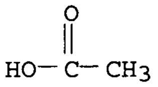
IT **3375-31-3** **13965-03-2**, Bis(**triphenylphosphine**) **palladium** dichloride **14221-01-3**, Tetrakis( **triphenylphosphine**)**palladium**

RL: CAT (Catalyst use); USES (Uses)

(preparation of aromatic tertiary amines by cross-coupling of iodo aromatic amines with aromatic boronic acids using Pd catalysts)

RN 3375-31-3 HCAPLUS

CN Acetic acid, palladium(2+) salt (8CI, 9CI) (CA INDEX NAME)

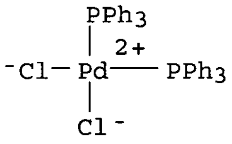


$HO-\overset{\overset{O}{\|}}{C}-CH_3$

●1/2 Pd(II)

RN 13965-03-2 HCAPLUS

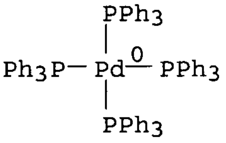
CN Palladium, dichlorobis(triphenylphosphine)- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



$^{-}Cl-\underset{\underset{Cl^{-}}{|}}{\overset{\overset{PPh_3}{|}}{Pd}}{}^{2+}-PPh_3$

RN 14221-01-3 HCAPLUS

CN Palladium, tetrakis(triphenylphosphine)-, (T-4)- (9CI) (CA INDEX NAME)



$Ph_3P-\underset{\underset{PPh_3}{|}}{\overset{\overset{PPh_3}{|}}{Pd}}\overset{0}{-}PPh_3$

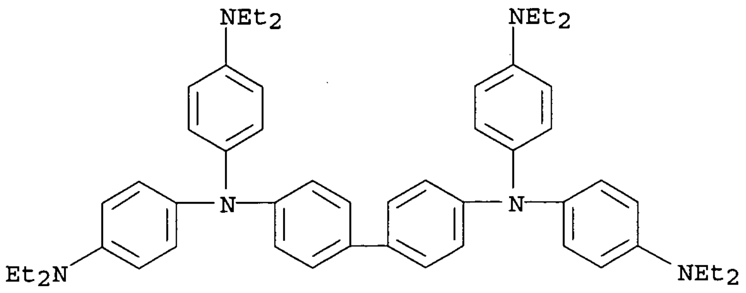
IT **4086-11-7P** **65181-78-4P** **122738-21-0P** **201802-45-1P** **201802-64-4P**

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); **PREP (Preparation)**

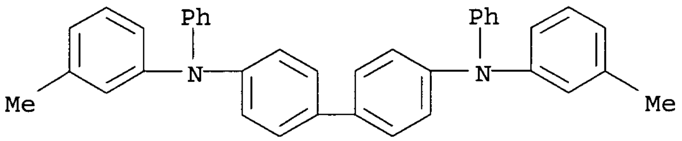
(preparation of aromatic tertiary amines by cross-coupling of iodo aromatic amines with aromatic boronic acids using Pd catalysts)

RN 4086-11-7 HCAPLUS

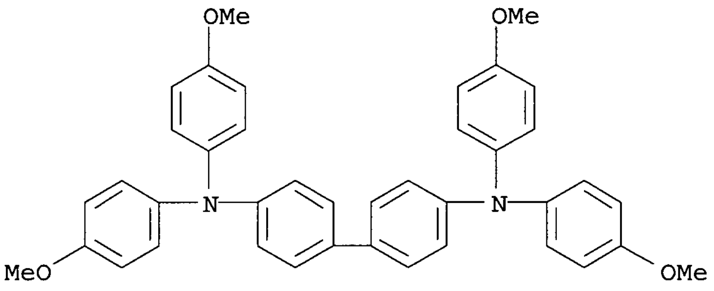
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis[4-(diethylamino)phenyl]- (9CI) (CA INDEX NAME)



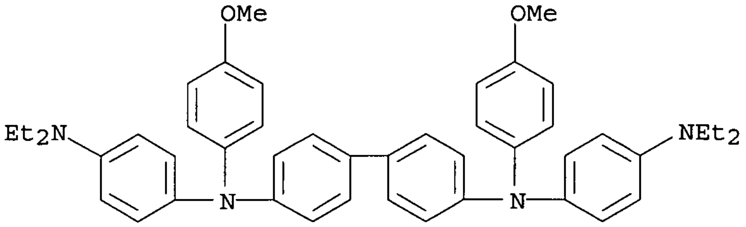
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



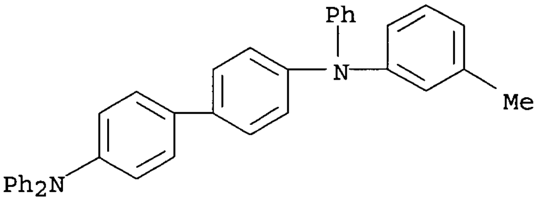
RN 122738-21-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 201802-45-1 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4-(diethylamino)phenyl]-N,N'-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 201802-64-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N,N',N'-triphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:618026 HCAPLUS

DOCUMENT NUMBER: 126:12605

TITLE: Novel hole-transporting materials based on triphenylamine for organic electroluminescent devices

AUTHOR(S): Tanaka, Hiromitsu; Tokito, Shizuo; Taga, Yasunori; Okada, Akane

CORPORATE SOURCE: Toyota Central R & D Labs., Inc., Aichi, 480-11, Japan

SOURCE: Chemical Communications (Cambridge) (**1996**), (18), 2175-2176

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Oligomeric triphenylamines having high glass transition temps. are synthesized for use in thermally stable organic electroluminescent devices.

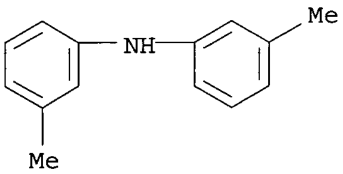
IT **626-13-1**

RL: RCT (Reactant); RACT (Reactant or reagent)

(Ullmann coupling reaction with diiodobiphenyl)

RN 626-13-1 HCAPLUS

CN Benzenamine, 3-methyl-N-(3-methylphenyl)- (9CI) (CA INDEX NAME)



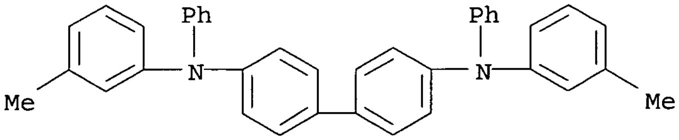
IT **65181-78-4**

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(fluorescence and UV spectra of hole-transporting material for electroluminescent devices)

RN 65181-78-4 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

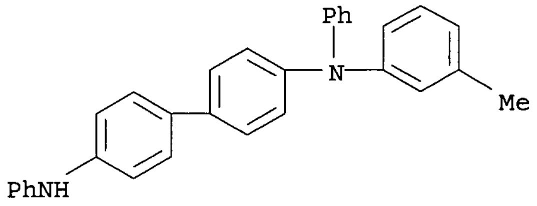


IT **184104-81-2 184104-82-3**

RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(formation and reaction in formation of oligomeric triphenylamines for electroluminescent devices)

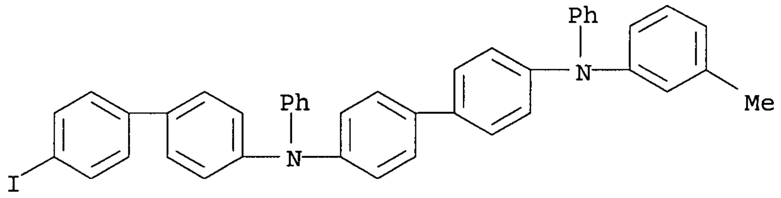
RN 184104-81-2 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N-(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 184104-82-3 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N-(4'-iodo[1,1'-biphenyl]-4-yl)-N'-(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

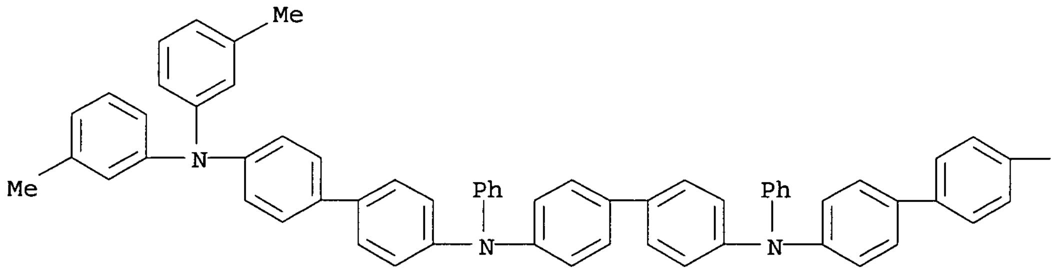


IT **182069-71-2P 184104-78-7P 184104-79-8P**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(preparation and fluorescence and UV spectra of hole-transporting material for electroluminescent devices)

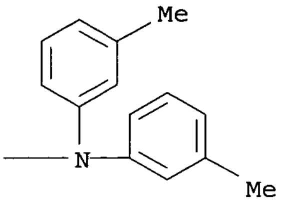
RN 182069-71-2 HCAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis[4'-[bis(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)

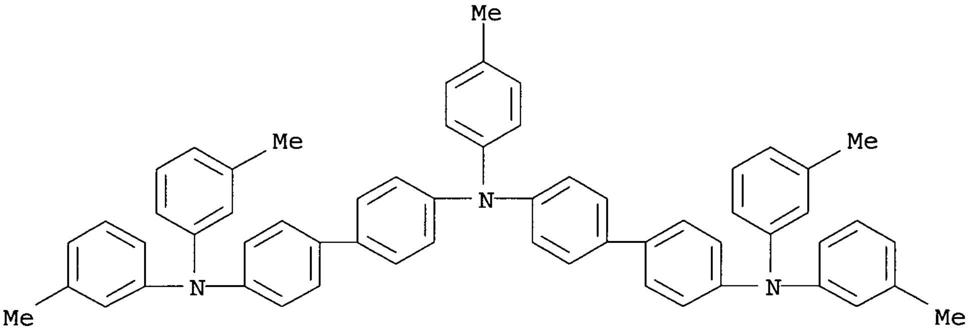
PAGE 1-A



PAGE 1-B

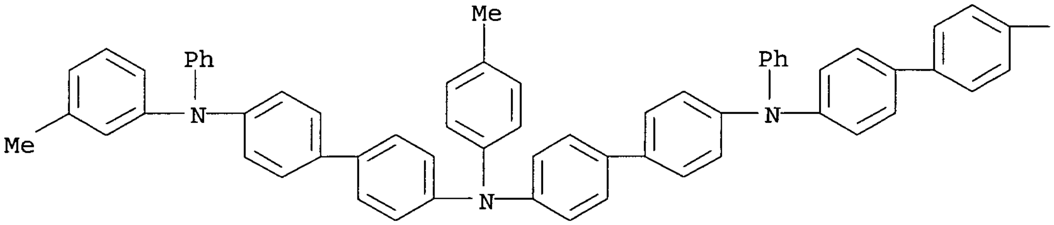


RN 184104-78-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-[4'-[bis(3-methylphenyl)amino][1,1'-biphenyl]-4-yl]-N',N'-bis(3-methylphenyl)-N-(4-methylphenyl)- (9CI) (CA INDEX NAME)

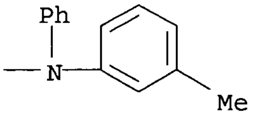


RN 184104-79-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N-(4-methylphenyl)-N,N'-bis[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-phenyl- (9CI) (CA INDEX NAME)

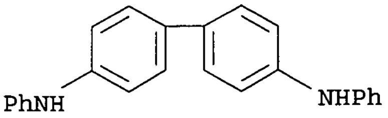
PAGE 1-A



PAGE 1-B



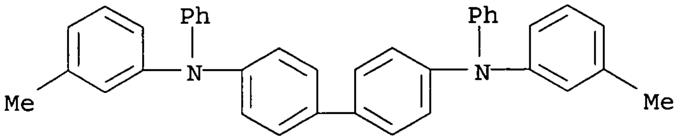
IT **531-91-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction in formation of oligomeric triphenylamines for electroluminescent devices)
RN 531-91-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



L34 ANSWER 24 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:273270 HCAPLUS
DOCUMENT NUMBER: 124:316729
TITLE: Preparation of tris(aryl)amines
INVENTOR(S): Ackermann, Roland; Richter, Andreas M.; Lutz, Manfred; Humpert, Hans-Josef; Arndt, Detlef
PATENT ASSIGNEE(S): Licentia Patent-Verwaltungs-GmbH, Germany
SOURCE: Ger. Offen., 3 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|
| DE 4427120 | A1 | 19960201 | DE 1994-4427120 | 19940730 | <-- |
| PRIORITY APPLN. INFO.: | | | DE 1994-4427120 | 19940730 | |

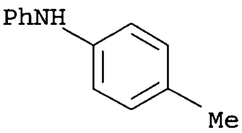
AB In the condensation of a mono- or diarylamine with an iodoarom. in the presence of Cu use of a metal alcoholate as base avoids foaming.
IT **65181-78-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of tris(aryl)amines)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



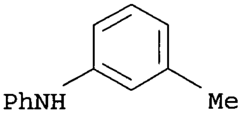
IT **122-39-4**, Diphenylamine, reactions **620-84-8**, N-Phenyl-4-methylaniline **1205-64-7**, N-Phenyl-3-methylaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of tris(aryl)amines)
RN 122-39-4 HCAPLUS
CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph— NH— Ph

RN   620-84-8  HCAPLUS
CN   Benzenamine, 4-methyl-N-phenyl- (9CI)  (CA INDEX NAME)



RN   1205-64-7  HCAPLUS
CN   Benzenamine, 3-methyl-N-phenyl- (9CI)  (CA INDEX NAME)

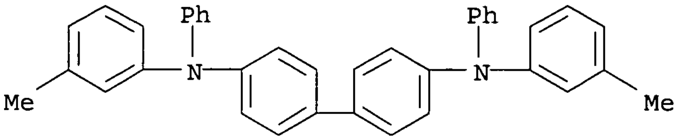


L34  ANSWER 25 OF 28  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:267990  HCAPLUS
DOCUMENT NUMBER: 124:316730
TITLE: Preparation of tris(aryl)amines
INVENTOR(S): Ackermann, Roland; Richter, Andreas M.; Lutz, Manfred; Humpert, Hans-Josef; Arndt, Detlef
PATENT ASSIGNEE(S): Licentia Patent-Verwaltungs-GmbH, Germany
SOURCE: Ger. Offen., 3 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| DE 4427121 | A1 | 19960201 | DE 1994-4427121 | 19940730 <-- |

PRIORITY APPLN. INFO.: DE 1994-4427121 19940730

AB   In the condensation of a mono- or diarylamine with an iodoarom. the catalyst is pred. in situ by reaction of Cu(OAc)2 with Zn and K2CO3 is used as base.
IT   **65181-78-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of tris(aryl)amines)
RN   65181-78-4  HCAPLUS
CN   [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI)  (CA INDEX NAME)



IT **122-39-4**, Diphenylamine, reactions **620-84-8**,
N-Phenyl-4-methylaniline **1205-64-7**, N-Phenyl-3-methylaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of tris(aryl)amines)

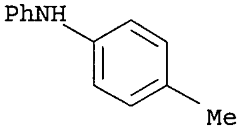
RN 122-39-4 HCAPLUS

CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph—NH—Ph

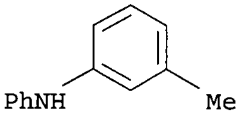
RN 620-84-8 HCAPLUS

CN Benzenamine, 4-methyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 1205-64-7 HCAPLUS

CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)

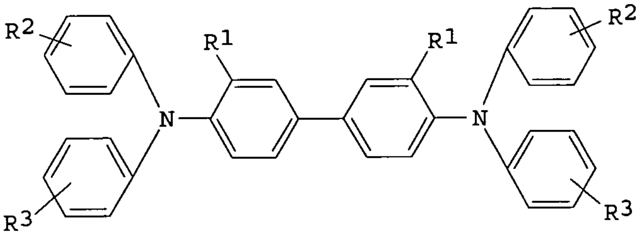


L34 ANSWER 26 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

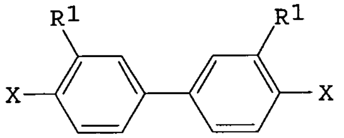
ACCESSION NUMBER: 1988:610670 HCAPLUS
DOCUMENT NUMBER: 109:210670
TITLE: Preparation of N,N'-Tetraphenylbenzidines as materials for photoconductors
INVENTOR(S): Akasaki, Yutaka; Sato, Katsuhiro; Yabuchi, Naoya; Tanaka, Hiroyuki
PATENT ASSIGNEE(S): Fuji Xerox Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 62267749 | A2 | 19871120 | JP 1986-110613 | 19860516 <-- |
| PRIORITY APPLN. INFO.: | | | JP 1986-110613 | 19860516 |

GI



I



II

AB Benzidine compds. I (R1 = alkyl, alkoxy, halo; R2-3 = H, alkyl, alkoxy, halo, alkoxycarbonyl, substituted amino), useful as charge-transfer materials for photoconductors (no data), were prepared by treating biphenyls II (X = halo) with R2C6H4NHC6H4R3. Thus, II (R1 = Me, X = iodo) was heated with NHPh2 in sulfolane containing K2CO3 under stirring at 230° for 28 h to give 31% I (R1 = Me, R2 = R3 = H).

IT **122-39-4**, Diphenylamine, reactions **1205-64-7**, 3-Methyldiphenylamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation of, with diiodobiphenyls, benzidine derivs. from)

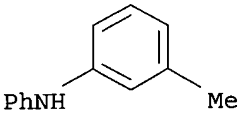
RN 122-39-4 HCAPLUS

CN Benzenamine, N-phenyl- (9CI) (CA INDEX NAME)

Ph— NH— Ph

RN 1205-64-7 HCAPLUS

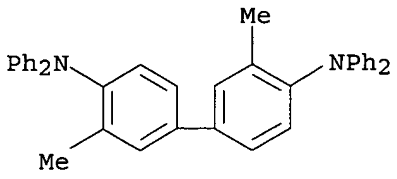
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



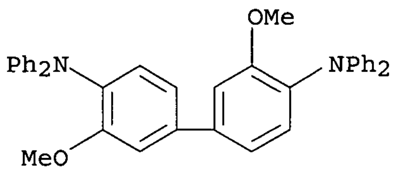
IT **105465-12-1P 105465-18-7P 116292-17-2P 116292-19-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as charge-transfer material for photoconductors)

RN 105465-12-1 HCAPLUS

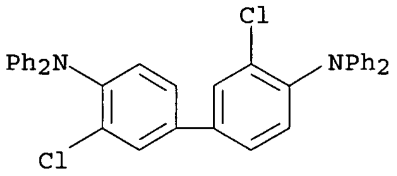
CN [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



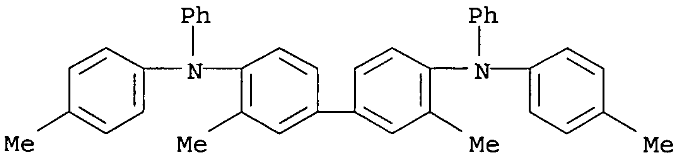
RN 105465-18-7 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-N,N,N',N'-tetraphenyl- (9CI)
(CA INDEX NAME)



RN 116292-17-2 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-N,N,N',N'-tetraphenyl- (9CI)
(CA INDEX NAME)



RN 116292-19-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



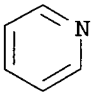
L34 ANSWER 27 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 1985:531128 HCAPLUS |
| DOCUMENT NUMBER: | 103:131128 |
| TITLE: | Electrochemical polymerization of 1-hydroxyethyltriphenylamines. Preparation of electrodes modified by redox polymer films |
| AUTHOR(S): | Coche, L.; Moutet, J. C. |
| CORPORATE SOURCE: | Dep. Rech. Fondam., Cent. Etud. Nucl. Grenoble, Grenoble, F-38041, Fr. |
| SOURCE: | Electrochimica Acta (**1985**), 30(8), 1063-70<br>CODEN: ELCAAV; ISSN: 0013-4686 |

DOCUMENT TYPE: Journal
LANGUAGE: French

AB Upon anodic oxidation of 4-(1-hydroxyethyl)triphenylamine (I) and 4,4'-bis(1-hydroxyethyl)triphenylamine a redox polymer grows on the electrode, and another 1 ppts. in the solution The mechanism of polymerization of these carbinols is discussed on the basis of electrochem., IR and mass spectral studies. The polymerization, initiated by oxidation, proceeds by acid catalysis. The redox polymer contains benzidine and triphenylamine moieties. Study of electrodes modified by electropolymn. of I shows that the rate of film electrochem. reactions is controlled by the rate of diffusion of the electrochem. charge through the film.

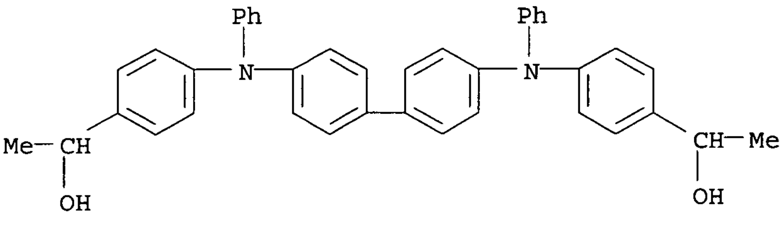
IT **110-86-1**, uses and miscellaneous
RL: USES (Uses)
(electrochem. polymerization of (hydroxyethyl)triphenylamine and bis(hydroxyethyl)triphenylamine in presence of)
RN 110-86-1 HCAPLUS
CN Pyridine (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7440-06-4**, uses and miscellaneous
RL: USES (Uses)
(electrodes, modified by redox polymer from electrochem. polymerization of hydroxyethyltriphenylamines)
RN 7440-06-4 HCAPLUS
CN Platinum (8CI, 9CI) (CA INDEX NAME)

Pt

IT **98311-82-1P**
RL: FORM (Formation, nonpreparative); **PREP (Preparation)**
(formation of, by electrochem. oxidation of (hydroxyethyl)triphenylamine)
RN 98311-82-1 HCAPLUS
CN Benzenemethanol, 4,4'-[[1,1'-biphenyl]-4,4'-diylbis(phenylimino)]bis[.alpha.-methyl- (9CI) (CA INDEX NAME)

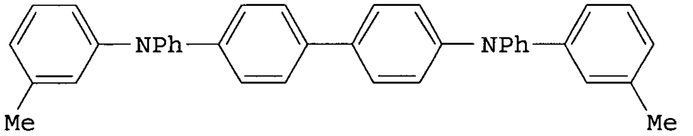


L34 ANSWER 28 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1982:19802 HCAPLUS
DOCUMENT NUMBER: 96:19802
TITLE: Arylamines

INVENTOR(S): Turner, Richard S.; Renfer, Dale S.; Yanus, John F.
PATENT ASSIGNEE(S): Xerox Corp. , USA
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | | DATE | |
|---|---|---|---|---|---|---|
| EP 34425 | A2 | 19810826 | EP 1981-300388 | | 19810130 | <-- |
| EP 34425 | A3 | 19820505 | | | | |
| EP 34425 | B1 | 19840516 | | | | |
| R: DE, FR, GB, NL | | | | | | |
| CA 1171431 | A1 | 19840724 | CA 1981-369668 | | 19810129 | <-- |
| JP 56135448 | A2 | 19811022 | JP 1981-15557 | | 19810204 | <-- |
| JP 58052983 | B4 | 19831126 | | | | |
| JP 59046249 | A2 | 19840315 | JP 1983-129283 | | 19830715 | <-- |
| JP 01029182 | B4 | 19890608 | | | | |
| PRIORITY APPLN. INFO.: | | | US 1980-118147 | A | 19800204 | |
| | | | US 1980-215610 | A | 19801212 | |

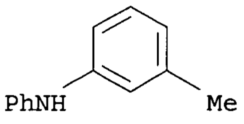
GI



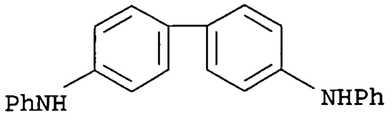
I

AB Chromatic tertiary amines were prepared by condensing mono- or disecondary amines and diiodoaryl aryl compds. in the presence of KOH and Cu at 120°-190°. Thus, 4-IC6H4C6H4I-4 was treated with 3-MeC6H4NHPh in the presence of KOH and Cu at 160° for 5 h to give 85% I.

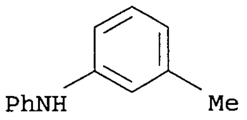
IT **1205-64-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation of, by diiodobiphenyl in the presence of potassium hydroxide)
RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



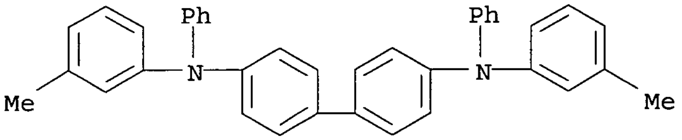
IT **531-91-9**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation of, with diiodobenzene in the presence of potassium hydroxide and copper)
RN 531-91-9 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl- (9CI) (CA INDEX NAME)



IT **1205-64-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation of, with diiodopyrene in the presence of potassium hydroxide and copper)
RN 1205-64-7 HCAPLUS
CN Benzenamine, 3-methyl-N-phenyl- (9CI) (CA INDEX NAME)



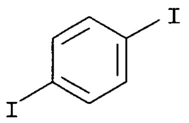
IT **65181-78-4P 80237-35-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 65181-78-4 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 80237-35-0 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-diphenyl-, polymer with 1,4-diiodobenzene (9CI) (CA INDEX NAME)

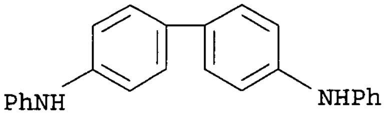
CM 1

CRN 624-38-4
CMF C6 H4 I2



CM 2

CRN 531-91-9
CMF C24 H20 N2


PhNH
NHPh

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